GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:33:21 ; Search time 61.4918 Seconds
(without alignments)
80.019 Million cell updates/sec

Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues

Total number of hits satisfying chosen parameters: 1107863

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_19Jun03:*
1: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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23: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
24: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2003.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	31	8	AAP71072	Insulinotropic pep
2	161	100.0	31	11	AAR07397	Glucagon-like pept
3	161	100.0	31	12	AAR13420	Glucagon-like pept
4	161	100.0	31	12	AAR13422	Glucagon-like pept
5	161	100.0	31	12	AAR13423	Glucagon-like pept
6	161	100.0	31	14	AAR42668	Glucagon-like pept
7	161	100.0	31	15	AAR45434	Insulinotropin der
8	161	100.0	31	15	AAR63246	Insulinotropin (GL
9	161	100.0	31	16	AAR75885	Glucagon like pept
10	161	100.0	31	16	AAR69065	Glucagon like pept
11	161	100.0	31	17	AAW03851	Glucagon like pept
12	161	100.0	31	17	AAW03907	Glucagon like pept
13	161	100.0	31	17	AAW03929	Glucagon like pept
14	161	100.0	31	17	AAW03899	Glucagon like pept
15	161	100.0	31	17	AAW03865	Glucagon like pept
16	161	100.0	31	17	AAW03866	Glucagon like pept
17	161	100.0	31	17	AAW03867	Glucagon like pept
18	161	100.0	31	17	AAW03853	Glucagon like pept
19	161	100.0	31	17	AAW03854	Glucagon like pept
20	161	100.0	31	17	AAW03855	Glucagon like pept
21	161	100.0	31	18	AAW24389	Glucagon-like pept
22	161	100.0	31	19	AAW63287	Glucagon-like pept
23	161	100.0	31	19	AAW63183	GLP-1(7-37). Homo
24	161	100.0	31	19	AAW63195	GLP-1(7-37). Synt
25	161	100.0	31	19	AAW50902	Glucagon-like pept
26	161	100.0	31	20	AAY80306	Glucagon peptide-1
27	161	100.0	31	20	AAY42936	Glucagon-like pept
28	161	100.0	31	20	AAY27375	Glucagon-like pept
29	161	100.0	31	20	AAY39772	Glucagon like pept
30	161	100.0	31	20	AAY39810	Glucagon-like pept
31	161	100.0	31	20	AAY34199	GLP-1 mutant pepti
32	161	100.0	31	20	AAY22165	GLP-1-like peptide
33	161	100.0	31	20	AAY18036	GLP-1(7-37)OH pept
34	161	100.0	31	21	AAB21328	GLP-1(7-37) peptid
35	161	100.0	31	21	AAB21339	GLP-1(7-37) peptid
36	161	100.0	31	21	AAB21109	Human glucagon-lik
37	161	100.0	31	21	AAY53277	Glucagon-like pept
38	161	100.0	31	21	AAY78950	Glucagon-like pept
39	161	100.0	31	21	AAY67372	Glucagon-like pept
40	161	100.0	31	22	AAU07374	Mammalian glucagon
41	161	100.0	31	22	AAE09251	Human glucagon-lik
42	161	100.0	31	22	AAG63268	Amino acid sequenc
43	161	100.0	31	22	AAB82335	Glucagon-like pept
44	161	100.0	31	22	AAB49694	Glucagon-like pept
45	161	100.0	31	22	AAB60248	Glucagon-like pept

ALIGNMENTS

RESULT 1
AAP71072
ID AAP71072 standard; peptide; 31 AA.
XX
AC AAP71072;
XX
DT 25-MAR-2003 (updated)
DT 03-OCT-2002 (updated)
DT 02-MAY-1991 (first entry)
XX
DE Insulinotropic peptide comprising GLP-1 residues 7-37.
XX
KW insulinotropic; glucagon like peptide; GLP-1; diabetes mellitus.
XX
OS Homo sapiens.
XX
PN WO8706941-A.
XX
PD 19-NOV-1987.
XX
PF 05-MAY-1987; 87WO-7001005.
XX
PR 05-MAY-1986; 86US-0859928.
XX
PA (GEHO) GEN HOSPITAL CORP.
XX
PI Habener J;
XX
DR WPI; 1987-334950/47.
XX
PT New peptide derivs. - increase insulin prodn. from beta islet
PT cells, comprise fragment of glucagon like peptide

XX
PS Claim 1; Page 24; 35pp; English.
XX
CC The mammalian hormone glucagon is produced as a precursor which is
CC subsequently cleaved to yield three peptides, one of which is GLP-1.
CC GLP-1 is itself processed in the pancreas and intestine from a 37
CC amino acid long peptide to a 31 residue peptide (7-37) having the
CC sequence given here. This insulinotropic hormone appears to act
CC specifically on pancreatic Beta cells and as such is useful for
CC enhancing insulin expression, eg for the treatment of diabetes
CC mellitus.
CC (Updated on 03-OCT-2002 to add missing OS field.)
CC (Updated on 25-MAR-2003 to correct PA field.)
XX
SQ Sequence 31 AA;

Query Match 100.0%; Score 161; DB 8; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.2e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 2
AAR07397
ID AAR07397 standard; peptide; 31 AA.
XX
AC AAR07397;
XX
DT 25-MAR-2003 (updated)
DT 29-JAN-1991 (first entry)
XX
DE Glucagon-like peptide, GLP-1 (7-37).
XX
KW Insulin; diabetes mellitus; insulinotropic: pancreatic beta cells.
XX
OS Synthetic.
XX
PN WO9011296-A.
XX
PD 04-OCT-1990.
XX
PF 20-MAR-1989; 89WO-US01121.
XX
PR 02-FEB-1989; 89US-0305458.
XX
PA (GEHO) GEN HOSPITAL CORP.
XX
PI Habener JF;
XX
DR WPI; 1990-320226/42.
XX
PT New glucagon-like peptide (GLP-1) - having insulin
PT formation-stimulating activity and useful in treating diabetes
PT mellitus.
XX
PS Claim 6; Page 39; 52pp; English.
XX
CC The peptide has insulinotropic activity specifically for pancreatic
CC beta cells. The peptide is derived from glucagon which, after
CC synthesis is cleaved into three peptides: glucgon, glucagon-like
CC peptide 1 (GLP-1) and GLP-2. GLP-1 has 37 AAs in its unprocessed
CC form and is unable to mediate the induction of insulin biosynthesis.
CC It is, however, naturally converted to a 31 AA-long peptide having
CC AAs 7-37 of GLP-1. Preferred derivs. have an H2 gp at the
CC N-terminal and an OH, OM, or NR'R'' gp at the C-terminal where M= a
CC cation or lower alkyl gp., and R' and R''= H or a lower alkyl gp.
CC Prepns. contg. the peptide or derivs. are useful in the study of
CC the pathogenesis of maturity onset of diabetes mellitus and also in
CC therapy.
CC (Updated on 25-MAR-2003 to correct PR field.)
CC (Updated on 25-MAR-2003 to correct PA field.)
XX
SQ Sequence 31 AA;

Query Match 100.0%; Score 161; DB 11; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.2e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 3
AAR13420
ID AAR13420 standard; Protein; 31 AA.
XX
AC AAR13420;
XX
DT 29-OCT-1991 (first entry)
XX
DE Glucagon-like peptide-1 (H)7-GLP-1(7-37).
XX
KW Glucagon; insulin; diabetes; degradation; islet cells.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 1
FT /label= D-H, N-acetyl-H, N-isopropyl-H
XX
PN WO9111457-A.
XX
PD 08-AUG-1991.
XX
PF 24-JAN-1991; 91WO-US00500.
XX
PR 24-JAN-1990; 90US-0468736.
XX
PA (BUCK/) BUCKLEY D I.
XX
PI Buckley DI, Habener JF, Mallory JB, Mojsov S;
XX
DR WPI; 1991-252609/34.
XX
PT New glucagon-like peptide-1 (GLP-1) analogues - have increased
PT insulin-stimulating activity and/or resistance to degradation in
PT vivo
XX
PS Claim 7; Page 37; 50pp; English.
XX
CC The peptides represented in AAR13420-27 are more powerful than glucagon
CC in stimulating insulin release from islet cells and some of them are
CC also more resistant to degradation in the plasma. Doses are usually
CC 1 picog-1mg/kg, for the treatment of diabetes Type II.
CC The last three amino acids may sequentially be omitted.
XX
SQ Sequence 31 AA;

Query Match 100.0%; Score 161; DB 12; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.2e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 4
AAR13422
ID AAR13422 standard; Protein; 31 AA.
XX
AC AAR13422;

XX
DT 29-OCT-1991 (first entry)
XX
DE Glucagon-like peptide-1 (A)8-GLP-1(7-37).
XX
KW Glucagon; insulin; diabetes; degradation; islet cells.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 2
FT /label= D-Ala
XX
PN WO9111457-A.
XX
PD 08-AUG-1991.
XX
PF 24-JAN-1991; 91WO-US00500.
XX
PR 24-JAN-1990; 90US-0468736.
XX
PA (BUCK/) BUCKLEY D I.
XX
PI Buckley DI, Habener JF, Mallory JB, Mojsov S;
XX
DR WPI; 1991-252609/34.
XX
PT New glucagon-like peptide-1 (GLP-1) analogues - have increased
PT insulin-stimulating activity and/or resistance to degradation in
PT vivo
XX
PS Claim 7; Page 37; 50pp; English.
XX
CC The peptides represented in AAR13420-27 are more powerful than glucagon
CC in stimulating insulin release from islet cells and some of them are
CC also more resistant to degradation in the plasma. Doses are usually
CC 1 picog-1mg/kg, for the treatment of diabetes Type II.
CC The last three amino acids may sequentially be omitted.
XX
SQ Sequence 31 AA;

Query Match 100.0%; Score 161; DB 12; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.2e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 5
AAR13423
ID AAR13423 standard; Protein; 31 AA.
XX
AC AAR13423;
XX
DT 29-OCT-1991 (first entry)
XX
DE Glucagon-like peptide-1 (E)9-GLP-1(7-37).
XX
KW Glucagon; insulin; diabetes; degradation; islet cells.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 3
FT /label= D-Glu
XX
PN WO9111457-A.
XX
PD 08-AUG-1991.
XX
PF 24-JAN-1991; 91WO-US00500.
XX
PR 24-JAN-1990; 90US-0468736.
XX
PA (BUCK/) BUCKLEY D I.
XX
PI Buckley DI, Habener JF, Mallory JB, Mojsov S;
XX
DR WPI; 1991-252609/34.
XX
PT New glucagon-like peptide-1 (GLP-1) analogues - have increased
PT insulin-stimulating activity and/or resistance to degradation in
PT vivo
XX
PS Claim 7; Page 37; 50pp; English.
XX
CC The peptides represented in AAR13420-27 are more powerful than glucagon
CC in stimulating insulin release from islet cells and some of them are
CC also more resistant to degradation in the plasma. Doses are usually
CC 1 picog-1mg/kg, for the treatment of diabetes Type II.
CC The last three amino acids may sequentially be omitted.
XX
SQ Sequence 31 AA;

Query Match 100.0%; Score 161; DB 12; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.2e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 6
AAR42668
ID AAR42668 standard; peptide; 31 AA.
XX
AC AAR42668;
XX
DT 25-MAR-2003 (updated)
DT 26-APR-1994 (first entry)
XX
DE Glucagon-like peptide (GLP-1(7-37)).
XX
KW Glucagon-like peptide; GLP; phospholipid;
KW dioctanoyl-L-alpha-phosphatidylcholine; diabetes;
KW dilauroyl-L-alpha-phosphatidylcholine; insulinotropic agent.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 31
FT /note= "Gly31 may be omitted, in which case the
FT C-terminal is amidated"
XX
PN WO9318785-A1.
XX
PD 30-SEP-1993.
XX
PF 18-MAR-1993; 93WO-DK00098.
XX
PR 19-MAR-1992; 92DK-0000364.
XX
PA (NOVO) NOVO-NORDISK AS.
XX
PI Kirk O, Pridal L;
XX
DR WPI; 1993-320450/40.
XX
PT Medicament for treatment of diabetes - contains glucagon-like
PT peptide and phospholipid for intranasal admin.
XX
PS Claim 1; Page 18; 24pp; English.
XX

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CC   A medicament for intranasal admin. comprises this glucagon-like
CC   peptide (GLP) and a phospholipid, e.g. dioctanoyl-L-alpha-
CC   phosphatidylcholine, dilauroyl-L-alpha-phosphatidylcholine, etc.
CC   The medicament is used as an insulinotropic agent in the treatment
CC   of diabetes.  It has a very favourable absorption profile: absorption
CC   is slightly protracted and a constant plasma concn. of GLP is provided
CC   over an extended period.  In addn. the phospholipid exerts a
CC   stabilising effexct on the peptide.
CC   (Updated on 25-MAR-2003 to correct PN field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 14;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 7
AAR45434
ID   AAR45434 standard; protein; 31 AA.
XX
AC   AAR45434;
XX
DT   25-MAR-2003  (updated)
DT   27-JUN-1994  (first entry)
XX
DE   Insulinotropin derivative.
XX
KW   Insulinotropic; activity; enhancing insulin activity; treatment;
KW   Type II diabetes.
XX
OS   Synthetic.
XX
PN   WO9325579-A1.
XX
PD   23-DEC-1993.
XX
PF   14-APR-1993;   93WO-US03388.
XX
PR   15-JUN-1992;   92US-0899073.
XX
PA   (PFIZ ) PFIZER INC.
XX
PI   Andrews GC,  Daumy GO,  Francoeur ML,  Larson ER;
XX
DR   WPI; 1994-007457/01.
XX
PT   New derivs. of glucagon-like peptide 1 and insulinotropin - used for
PT   enhancing insulin action in a mammal, partic. by iontophoretic admin.
XX
PS   Claim 3; Page 20; 32pp; English.
XX
CC   The sequence is that of a derivative of insulinotropin which
CC   has insulinotropic activity and is useful for enhancing insulin
CC   action in a mammal, partic. for treating Type II diabetes
CC   (claimed). It is partic. suited for delivery to a mammal by
CC   ionophoresis.
CC   (Updated on 25-MAR-2003 to correct PN field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 15;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 8
AAR63246
ID   AAR63246 standard; peptide; 31 AA.
XX
AC   AAR63246;
XX
DT   25-MAR-2003  (updated)
DT   02-MAY-1995  (first entry)
XX
DE   Insulinotropin (GLP-1(7-37)) for use in treating NIDDM.
XX
KW   insulinotropic activity; GLP-1; glucagon-like protein 1; NIDDM;
KW   non-insulin dependent diabetes mellitus; insulintropin.
XX
OS   Synthetic.
XX
PN   EP619322-A2.
XX
PD   12-OCT-1994.
XX
PF   10-FEB-1994;   94EP-0300981.
XX
PR   07-APR-1993;   93US-0044133.
XX
PA   (PFIZ ) PFIZER INC.
PA   (SCIO-) SCIOS INC.
XX
PI   Danley DE,  Gelfand RA,  Geoghegan KF,  Kim Y,  Lambert WJ;
PI   Qi H,  Oih,  Hong Q,  Yesook K;
XX
DR   WPI; 1994-311774/39.
XX
PT   Treatment of non-insulin dependent diabetes mellitus - using a
PT   glucagon-like peptide 1 or deriv. with prolonged action for
PT   sustained glycaemic control
XX
PS   Claim 2; Page 46; 70pp; English.
XX
CC   This peptide is GLP-1(7-37) [GLP = glucagon-like peptide]. GLP-1 and its
CC   deriv.s are useful in the treatment of Non-Insulin Dependent Diabetes
CC   Mellitus (NIDDM). During processing in the pancreas and intestine, GLP-1
CC   (AAR63245) is converted to a 31 amino acid peptide having amino acids
CC   7-37 of GLP-1, alternatively referred to as insulinotropin. GLP-1(7-37)
CC   has insulinotropic activity, ie. it is able to stimulate, or cause to be
CC   stimulated, the synthesis of the hormone insulin. Other derivs. are
CC   shown in AAR63247-51. It has been discovered that prolonged plasma
CC   elevations of GLP-1, and related polypeptides, are necessary during the
CC   meal and beyond to achieve sustained glycemic control in patients with
CC   NIDDM. The invention provides a compsn. that has prolonged action after
CC   each administration.
CC   (Updated on 25-MAR-2003 to correct PN field.)
CC   (Updated on 25-MAR-2003 to correct PA field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 15;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 9
AAR75885
ID   AAR75885 standard; peptide; 31 AA.
XX
AC   AAR75885;
XX
DT   08-FEB-1996  (first entry)
XX
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```
DE   Glucagon like peptide-1(7-36), (7-36)amide and (7-37).
XX
KW   Glucagon like peptide-1; GLP-1; (7-36); (7-36)amide; (7-37);
KW   type 2 diabetes; treatment.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   36
FT                   /note= "may be amidated when Gly 31 is absent"
FT   Misc-difference 37
FT                   /note= "may be absent"
XX
PN   WO9517510-A1.
XX
PD   29-JUN-1995.
XX
PF   22-DEC-1994;   94WO-DK00487.
XX
PR   23-DEC-1993;   93DK-0001440.
XX
PA   (NOVO ) NOVO-NORDISK AS.
XX
PI   Bjorn SE,  Rasmussen JS,  Thim L;
XX
DR   WPI; 1995-240671/31.
XX
PT   Prodn. of glucagon-like peptide-1 (7-36) - using transformed
PT   bacteria contg. 2 or more consecutive DNA sequences coding for GLP-1
PT   (7-36)
XX
PS   Claim 1; Page 1; 27pp; English.
XX
CC   AAR75885 is the glucagon like peptide-1 (GLP-1) amino acids 7-36, the
CC   featured derivs. GLP-1(7-36)amide and GLP-1(7-37) are also given in
CC   the claims. The peptide and its derivs. can be used for the treatment
CC   of type 2 diabetes.
XX
SQ   Sequence   31 AA;

  Query Match            100.0%;  Score 161;  DB 16;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 10
AAR69065
ID   AAR69065 standard; peptide; 31 AA.
XX
AC   AAR69065;
XX
DT   25-MAR-2003  (updated)
DT   23-AUG-1995  (first entry)
XX
DE   Glucagon like peptide 1 (GLP1) (7-36)-Gly.
XX
KW   Glucagon Like Peptide; GLP; transpeptidation; endopeptidase;
KW   trypsin; thrombin; cleavage.
XX
OS   Synthetic.
XX
PN   WO9503405-A2.
XX
PD   02-FEB-1995.
XX
PF   19-JUL-1994;   94WO-US08125.
XX
PR   20-JUL-1993;   93US-0095162.
XX
PA   (BION-) BIONEBRASKA INC.
XX
PI   Henriksen D,  Manning S,  Partridge B,  Stout J,  Wagner FW;
XX
DR   WPI; 1995-075233/10.
XX
PT   Transpeptidation of recombinant polypeptides - using
PT   endopeptidase such as trypsin or thrombin to modify C-terminal
PT   residue.
XX
PS   Claim 34; Page 13; 69pp; English.
XX
CC   The naturally occurring sequence of Glucagon Like Peptide 1 (GLP1)
CC   is AAR69072. It is a 36 AA peptide that has been recombinantly
CC   produced but without a mechanism for providing for the amidation of
CC   the C-terminal Arg residue. Amidated recombinant GLP1 (7-36)NH2
CC   (AAR69063) was prepd. from a multicopy fusion protein contg. four
CC   copies of a modified truncated GLP peptide having AA residues 7-34
CC   of the native polypeptide and the terminal AA residues A-F-A at
CC   residues 35-37 (GLP1 (7-34)-A-F-A) (AAR69064). The recombinant GLP1 (7-
CC   34)-A-F-A can be transpeptidated to yield the modified recombinant
CC   native GLP1 (7-36)-NH2 (AAR69063) as follows. Trypsin was used to
CC   cleave the peptide at the Lys-Ala bond in the presence of either
CC   Gly-Arg-NH2 or Gly-Arg-Gly addition units so that the cleavage of
CC   the Ala-Phe-Arg leaving unit is followed by the addition of
CC   Gly-Arg-NH2 or Gly-Arg-Gly to the core GLP1 (7-34) to yield either
CC    amidated 7-36 GLP1-NH2 or GLP1 7-36 with a terminal Gly (AAR69065).
CC   (Updated on 25-MAR-2003 to correct PN field.)
XX
SQ   Sequence   31 AA;

  Query Match            100.0%;  Score 161;  DB 16;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 2.2e-16;
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              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 11
AAW03851
ID   AAW03851 standard; peptide; 31 AA.
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AC   AAW03851;
XX
DT   25-MAR-2003  (updated)
DT   14-APR-1997  (first entry)
XX
DE   Glucagon like peptide 1 (7-37) analogue D-His7.
XX
KW   Human; glucagon like peptide; GLP-1; analogue; stimulation;
KW   pancreas; insulin; islet cell; treatment; type II diabetes;
KW   degradation; resistant.
XX
OS   Homo sapiens.
XX
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PN   US5545618-A.
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PD   13-AUG-1996.
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PF   10-DEC-1993;   93US-0165516.
XX
PR   20-SEP-1991;   91US-0762768.
PR   24-JAN-1990;   90US-0468736.
PR   10-DEC-1993;   93US-0165516.
XX
PA   (BUCK/) BUCKLEY D I.
PA   (HABE/) HABENER J F.
```

```
PA   (MALL/) MALLORY J B.
PA   (MOJS/) MOJSOV S.
XX
PI   Buckley DI,  Habener JF,  Mallory JB,  Mojsov S;
XX
DR   WPI; 1996-383697/38.
XX
PT   New modified glucagon-like peptide I fragments - have higher
PT   activity than glucagon or have improved plasma stability, useful for
PT   treating type II diabetes
XX
PS   Claim 14; page -; 16pp; English.
XX
CC   The present peptide is a human glucagon like peptide 1 (GLP-1)
CC   analogue, which is useful for stimulating insulin release from
CC   pancreatic islet cells, especially in the treatment of type II
CC   diabetes at doses of 1 pg/kg to 1 mg/kg. This peptide has better
CC   resistance to degradation in plasma than GLP-1(7-37), and has a
CC   higher activity than glucagon, as exemplified by the results of an
CC   adenylate cyclase assay where the peptide had an ED50 of 1.1 nM,
CC   compared to 0.16 nM for GLP-1(7-37) and 80 nM for glucagon.
CC   (Updated on 25-MAR-2003 to correct PF field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 17;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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RESULT 12
AAW03907
ID   AAW03907 standard; peptide; 31 AA.
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AC   AAW03907;
XX
DT   25-MAR-2003  (updated)
DT   15-APR-1997  (first entry)
XX
DE   Glucagon like peptide 1 (7-37) analogue D-Lys34.
XX
KW   Human; glucagon like peptide; GLP-1; analogue; stimulation;
KW   pancreas; insulin; islet cell; treatment; type II diabetes.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 28
FT                   /note= "D-form residue"
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FT                   /note= "optionally absent when Arg30 and Gly31 are
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FT                   /note= "optionally absent"
XX
PN   US5545618-A.
XX
PD   13-AUG-1996.
XX
PF   10-DEC-1993;   93US-0165516.
XX
PR   20-SEP-1991;   91US-0762768.
PR   24-JAN-1990;   90US-0468736.
PR   10-DEC-1993;   93US-0165516.
XX
PA   (BUCK/) BUCKLEY D I.
PA   (HABE/) HABENER J F.
PA   (MALL/) MALLORY J B.
PA   (MOJS/) MOJSOV S.
XX
PI   Buckley DI,  Habener JF,  Mallory JB,  Mojsov S;
XX
DR   WPI; 1996-383697/38.
XX
PT   New modified glucagon-like peptide I fragments - have higher
PT   activity than glucagon or have improved plasma stability, useful for
PT   treating type II diabetes
XX
PS   Example 1; page -; 16pp; English.
XX
CC   The present peptide is a specific example of a claimed human
CC   glucagon like peptide 1 (GLP-1) analogue, which is useful for
CC   stimulating insulin release from pancreatic islet cells, especially
CC   in the treatment of type II diabetes at doses of 1 pg/kg to
CC   1 mg/kg.
CC   (Updated on 25-MAR-2003 to correct PF field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 17;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 13
AAW03929
ID   AAW03929 standard; peptide; 31 AA.
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AC   AAW03929;
XX
DT   25-MAR-2003  (updated)
DT   15-APR-1997  (first entry)
XX
DE   Glucagon like peptide 1 (7-37) analogue D-Arg36.
XX
KW   Human; glucagon like peptide; GLP-1; analogue; stimulation;
KW   pancreas; insulin; islet cell; treatment; type II diabetes.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
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FT                   /note= "D-form residue"
FT   Misc-difference 29
FT                   /note= "optionally absent when Arg30 and Gly31 are
FT                         absent"
FT   Misc-difference 30
FT                   /note= "optionally absent when Gly31 is absent"
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FT                   /note= "optionally absent"
XX
PN   US5545618-A.
XX
PD   13-AUG-1996.
XX
PF   10-DEC-1993;   93US-0165516.
XX
PR   20-SEP-1991;   91US-0762768.
PR   24-JAN-1990;   90US-0468736.
PR   10-DEC-1993;   93US-0165516.
XX
PA   (BUCK/) BUCKLEY D I.
PA   (HABE/) HABENER J F.
PA   (MALL/) MALLORY J B.
PA   (MOJS/) MOJSOV S.
XX
```

```
PI   Buckley DI,  Habener JF,  Mallory JB,  Mojsov S;
XX
DR   WPI; 1996-383697/38.
XX
PT   New modified glucagon-like peptide I fragments - have higher
PT   activity than glucagon or have improved plasma stability, useful for
PT   treating type II diabetes
XX
PS   Example 1; page -; 16pp; English.
XX
CC   The present peptide is a specific example of a claimed human
CC   glucagon like peptide 1 (GLP-1) analogue, which is useful for
CC   stimulating insulin release from pancreatic islet cells, especially
CC   in the treatment of type II diabetes at doses of 1 pg/kg to
CC   1 mg/kg.
CC   (Updated on 25-MAR-2003 to correct PF field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 17;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 14
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ID   AAW03899 standard; peptide; 31 AA.
XX
AC   AAW03899;
XX
DT   25-MAR-2003  (updated)
DT   15-APR-1997  (first entry)
XX
DE   Glucagon like peptide 1 (7-37) analogue D-Lys26.
XX
KW   Human; glucagon like peptide; GLP-1; analogue; stimulation;
KW   pancreas; insulin; islet cell; treatment; type II diabetes.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
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FT                   /note= "D-form residue"
FT   Misc-difference 29
FT                   /note= "optionally absent when Arg30 and Gly31 are
FT                    absent"
FT   Misc-difference 30
FT                   /note= "optionally absent when Gly31 is absent"
FT   Misc-difference 31
FT                   /note= "optionally absent"
XX
PN   US5545618-A.
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PD   13-AUG-1996.
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PR   24-JAN-1990;   90US-0468736.
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XX
PA   (BUCK/) BUCKLEY D I.
PA   (HABE/) HABENER J F.
PA   (MALL/) MALLORY J B.
PA   (MOJS/) MOJSOV S.
XX
PI   Buckley DI,  Habener JF,  Mallory JB,  Mojsov S;
XX
DR   WPI; 1996-383697/38.
XX
PT   New modified glucagon-like peptide I fragments - have higher
PT   activity than glucagon or have improved plasma stability, useful for
PT   treating type II diabetes
XX
PS   Example 1; page -; 16pp; English.
XX
CC   The present peptide is a specific example of a claimed human
CC   glucagon like peptide 1 (GLP-1) analogue, which is useful for
CC   stimulating insulin release from pancreatic islet cells, especially
CC   in the treatment of type II diabetes at doses of 1 pg/kg to
CC   1 mg/kg.
CC   (Updated on 25-MAR-2003 to correct PF field.)
XX
SQ   Sequence   31 AA;

  Query Match             100.0%;  Score 161;  DB 17;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
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RESULT 15
AAW03865
ID   AAW03865 standard; peptide; 31 AA.
XX
AC   AAW03865;
XX
DT   25-MAR-2003  (updated)
DT   15-APR-1997  (first entry)
XX
DE   Glucagon like peptide 1 (7-37) analogue N-formyl-(D-His/L-His7).
XX
KW   Human; glucagon like peptide; GLP-1; analogue; stimulation;
KW   pancreas; insulin; islet cell; treatment; type II diabetes.
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OS   Homo sapiens.
XX
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FT                   /note= "optionally absent when Gly31 is absent"
FT   Misc-difference 31
FT                   /note= "optionally absent"
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PN   US5545618-A.
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XX
PA   (BUCK/) BUCKLEY D I.
PA   (HABE/) HABENER J F.
PA   (MALL/) MALLORY J B.
PA   (MOJS/) MOJSOV S.
XX
PI   Buckley DI,  Habener JF,  Mallory JB,  Mojsov S;
XX
DR   WPI; 1996-383697/38.
XX
PT   New modified glucagon-like peptide I fragments - have higher
PT   activity than glucagon or have improved plasma stability, useful for
```

PT treating type II diabetes
XX
PS Example 1; page -; 16pp; English.
XX
CC The present peptide is a specific example of a claimed human
CC glucagon like peptide 1 (GLP-1) analogue, which is useful for
CC stimulating insulin release from pancreatic islet cells, especially
CC in the treatment of type II diabetes at doses of 1 pg/kg to
CC 1 mg/kg.
CC (Updated on 25-MAR-2003 to correct PF field.)
XX
SQ Sequence 31 AA;

Query Match 100.0%; Score 161; DB 17; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.2e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Search completed: October 15, 2003, 10:53:05
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GenCore version 5.1.6

OM protein - protein search, using sw model

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Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

Scoring table: BLOSUM62
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Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0
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Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	31	1	US-08-095-162-3	Sequence 3, Appli
2	161	100.0	31	1	US-08-470-220A-3	Sequence 3, Appli
3	161	100.0	31	3	US-08-967-374-3	Sequence 3, Appli
4	161	100.0	31	3	US-08-961-405A-1	Sequence 1, Appli
5	161	100.0	31	3	US-08-915-918A-1	Sequence 1, Appli
6	161	100.0	31	3	US-09-302-596-3	Sequence 3, Appli
7	161	100.0	31	3	US-08-472-349-2	Sequence 2, Appli
8	161	100.0	31	4	US-09-623-618B-2	Sequence 2, Appli
9	161	100.0	31	4	US-09-333-415-3	Sequence 3, Appli
10	161	100.0	31	4	US-09-209-799D-1	Sequence 1, Appli
11	161	100.0	31	4	US-09-505-991-3	Sequence 3, Appli
12	161	100.0	31	4	US-09-303-016-3	Sequence 3, Appli
13	161	100.0	31	4	US-09-657-332A-2	Sequence 2, Appli
14	161	100.0	31	4	US-09-614-847-124	Sequence 124, App
15	161	100.0	31	4	US-09-997-792A-1	Sequence 1, Appli
16	161	100.0	31	4	US-09-805-507-3	Sequence 3, Appli
17	161	100.0	31	4	US-09-585-186A-1	Sequence 1, Appli
18	161	100.0	37	1	US-08-095-162-19	Sequence 19, Appl
19	161	100.0	37	1	US-08-470-220A-19	Sequence 19, Appl
20	161	100.0	37	3	US-08-967-374-19	Sequence 19, Appl
21	161	100.0	37	3	US-09-302-596-1	Sequence 1, Appli
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25	161	100.0	37	4	US-09-505-991-19	Sequence 19, Appl
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30	161	100.0	176	3	US-09-108-661-18	Sequence 18, Appl
31	161	100.0	180	3	US-08-784-582-56	Sequence 56, Appl
32	161	100.0	180	3	US-08-784-582-58	Sequence 58, Appl
33	161	100.0	180	3	US-08-784-582-61	Sequence 61, Appl
34	161	100.0	360	3	US-08-784-582-73	Sequence 73, Appl
35	158	98.1	31	2	US-08-835-231-12	Sequence 12, Appl
36	158	98.1	31	3	US-09-258-750-1	Sequence 1, Appli
37	158	98.1	31	3	US-09-258-750-2	Sequence 2, Appli
38	158	98.1	31	3	US-09-258-750-3	Sequence 3, Appli
39	158	98.1	31	3	US-09-108-661-12	Sequence 12, Appl
40	158	98.1	31	4	US-09-585-181A-1	Sequence 1, Appli
41	158	98.1	31	4	US-09-209-799D-11	Sequence 11, Appl
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43	158	98.1	31	4	US-09-398-111-2	Sequence 2, Appli
44	158	98.1	31	4	US-09-398-111-3	Sequence 3, Appli
45	158	98.1	31	4	US-09-997-792A-9	Sequence 9, Appli

ALIGNMENTS

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RESULT 1
US-08-095-162-3
; Sequence 3, Application US/08095162
; Patent No. 5512459
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5512459west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/095,162
;      FILING DATE:  20-JUL-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 (7-36)-Gly
US-08-095-162-3

  Query Match           100.0%;  Score 161;  DB 1;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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RESULT 2
US-08-470-220A-3
; Sequence 3, Application US/08470220A
; Patent No. 5707826
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5707826west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/470,220A
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/095,162
;      FILING DATE:  20-JUL-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 (7-36)-Gly
US-08-470-220A-3

  Query Match             100.0%;  Score 161;  DB 1;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 3
US-08-967-374-3
; Sequence 3, Application US/08967374
; Patent No. 6037143
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 6037143west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/967,374
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/520,485
;      FILING DATE:  29-AUG-1995
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G.
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.32-USD1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 (7-36)-Gly
US-08-967-374-3

  Query Match             100.0%;  Score 161;  DB 3;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 4
US-08-961-405A-1
; Sequence 1, Application US/08961405A
; Patent No. 6191102
;  GENERAL INFORMATION:
;    APPLICANT:  DiMarchi, Richard D.
;    APPLICANT:  Efendic, Suad
;    TITLE OF INVENTION:  USE OF GLP-1 ANALOGS AND DERIVATIVES
;    TITLE OF INVENTION:  ADMINISTERED PERIPHERALLY IN REGULATION OF OBESITY
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  BARNES & THORNBURG
;      STREET:  200 W. Madison, Suite 2601
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60606
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/961,405A
;      FILING DATE:  30-OCT-1997
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;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 60/030,213
;      FILING DATE:  05-NOV-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Martin, Alice O.
;      REGISTRATION NUMBER:  35,601
;      REFERENCE/DOCKET NUMBER:  3051/90264
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-357-1313
;      TELEFAX:  312-759-5646
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-961-405A-1

  Query Match           100.0%;  Score 161;  DB 3;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 5
US-08-915-918A-1
; Sequence 1, Application US/08915918A
; Patent No. 6277819
;  GENERAL INFORMATION:
;    APPLICANT:  Efendic, Suad
;    TITLE OF INVENTION:  USE OF GLP-1 OR ANALOGS IN TREATMENT OF
;    TITLE OF INVENTION:  MYOCARDIAL INFARCTION
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  BRINKS, HOFER, GILSON & LIONE
;      STREET:  NBC Tower - Suite 3600, 455 N. Cityfront
;      STREET:  Plaza Drive
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60611-5599
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/915,918A
;      FILING DATE:  21-AUG-1997
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Martin, Alice O.
;      REGISTRATION NUMBER:  35,601
;      REFERENCE/DOCKET NUMBER:  8792/28
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-321-4200
;      TELEFAX:  312-321-4299
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-915-918A-1

  Query Match           100.0%;  Score 161;  DB 3;  Length 31;
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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 6
US-09-302-596-3
; Sequence 3, Application US/09302596
; Patent No. 6284725
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas R.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
;  TITLE OF INVENTION:  Ischemic and Reperfused Tissue
;  FILE REFERENCE: P03660US1
;  CURRENT APPLICATION NUMBER: US/09/302,596
;  CURRENT FILING DATE:  1999-04-30
;  PRIOR APPLICATION NUMBER: 60/103,498
;  PRIOR FILING DATE: 1998-10-08
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 3
;    LENGTH: 31
;    TYPE: PRT
;    ORGANISM: mammalian
US-09-302-596-3

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  Best Local Similarity  100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 7
US-08-472-349-2
; Sequence 2, Application US/08472349
; Patent No. 6284727
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/472,349
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/181,655
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
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;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
;      UNITS:  N/A
US-08-472-349-2

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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 8
US-09-623-618B-2
; Sequence 2, Application US/09623618B
; Patent No. 6329336
; GENERAL INFORMATION:
;  APPLICANT: Bridon, Dominique P.
;  APPLICANT:  L'Archeveque, Benoit
;  APPLICANT:  Ezrin, Alan M.
;  APPLICANT:  Holmes, Darren L.
;  APPLICANT:  Leblanc, Anouk
;  APPLICANT:  St. Pierre, Serge
;  TITLE OF INVENTION: LONG LASTING INSULINOTROPIC PEPTIDES
;  FILE REFERENCE: 500862001620
;  CURRENT APPLICATION NUMBER: US/09/623,618B
;  CURRENT FILING DATE:  2000-09-05
;  PRIOR APPLICATION NUMBER: PCT/US00/13563
;  PRIOR FILING DATE: 2000-05-17
;  PRIOR APPLICATION NUMBER: 60/159,783
;  PRIOR FILING DATE: 1999-10-15
;  PRIOR APPLICATION NUMBER: 60/134,406
;  PRIOR FILING DATE: 1999-05-17
;  NUMBER OF SEQ ID NOS: 35
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Peptide
US-09-623-618B-2

  Query Match           100.0%;  Score 161;  DB 4;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 9
US-09-333-415-3
; Sequence 3, Application US/09333415
; Patent No. 6344180
; GENERAL INFORMATION:
;  APPLICANT:  Holst, Jens J.
;  APPLICANT:  Vilsboll, Tina
;  TITLE OF INVENTION:  GLP-1 as a Diagnostic Test to Determine Beta-Cell
;  TITLE OF INVENTION:  Function and the Presence of the Condition of IGT and
;  TITLE OF INVENTION:  Type-II Diabetes
;  FILE REFERENCE:  P03987US0
;  CURRENT APPLICATION NUMBER: US/09/333,415
;  CURRENT FILING DATE:  1999-06-15
;  NUMBER OF SEQ ID NOS:  13
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-333-415-3

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  Best Local Similarity  100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 10
US-09-209-799D-1
; Sequence 1, Application US/09209799D
; Patent No. 6380357
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/209,799D
;  CURRENT FILING DATE:  1998-12-11
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-209-799D-1

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              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 11
US-09-505-991-3
; Sequence 3, Application US/09505991
; Patent No. 6403361
;   GENERAL INFORMATION:
;        APPLICANT: Wagner, Fred W.
;                   Stout, Jay
;                   Henriksen, Dennis
```

; Partridge, Bruce
; Manning, Shane
; TITLE OF INVENTION: Enzymatic Method for Modification of
; Recombinant Polypeptides
; NUMBER OF SEQUENCES: 26
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Merchant & Gould
; STREET: 3100 No. 6403361west Center
; CITY: Minneapolis
; STATE: MN
; COUNTRY: USA
; ZIP: 55402
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/505,991
; FILING DATE: 17-Feb-2000
; CLASSIFICATION: <Unknown>
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 08/520,485
; FILING DATE: <Unknown>
; ATTORNEY/AGENT INFORMATION:
; NAME: Carter, Charles G.
; REGISTRATION NUMBER: 35,093
; REFERENCE/DOCKET NUMBER: 8648.32-USD1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 612-332-5300
; TELEFAX: 612-332-9081
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 31 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; IMMEDIATE SOURCE:
; CLONE: GLP1 (7-36)-Gly
; SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-09-505-991-3

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  Best Local Similarity 100.0%; Pred. No. 9.9e-17;
  Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 12
US-09-303-016-3
; Sequence 3, Application US/09303016
; Patent No. 6429197
; GENERAL INFORMATION:
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Ehlers, Mario R.W.
; TITLE OF INVENTION: Metabolic Intervention with GLP-1 or its Biologically
; TITLE OF INVENTION: Active Analogues to Improve the Function of the
; TITLE OF INVENTION: Ischemic and Reperfused Brain
; FILE REFERENCE: P03660US2
; CURRENT APPLICATION NUMBER: US/09/303,016
; CURRENT FILING DATE: 1999-04-30
; PRIOR APPLICATION NUMBER: 60/103,498
; PRIOR FILING DATE: 1998-10-08
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 3
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-303-016-3

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  Best Local Similarity 100.0%; Pred. No. 9.9e-17;
  Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 13
US-09-657-332A-2
; Sequence 2, Application US/09657332A
; Patent No. 6514500
; GENERAL INFORMATION:
; APPLICANT: Bridon, Dominique P.
; APPLICANT: L'Archeveque, Benoit
; APPLICANT: Ezrin, Alan M.
; APPLICANT: Holmes, Darren L.
; APPLICANT: Leblanc, Anouk
; APPLICANT: St. Pierre, Serge
; TITLE OF INVENTION: LONG LASTING SYNTHETIC GLUCAGON LIKE PEPTIDE (GLP-1)
; FILE REFERENCE: 500862001600
; CURRENT APPLICATION NUMBER: US/09/657,332A
; CURRENT FILING DATE: 2001-09-10
; PRIOR APPLICATION NUMBER: 60/159,783
; PRIOR FILING DATE: 1999-10-15
; PRIOR APPLICATION NUMBER: 60/134,406
; PRIOR FILING DATE: 1999-05-17
; NUMBER OF SEQ ID NOS: 35
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 2
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic
; OTHER INFORMATION: Peptide
US-09-657-332A-2

  Query Match 100.0%; Score 161; DB 4; Length 31;
  Best Local Similarity 100.0%; Pred. No. 9.9e-17;
  Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 14
US-09-614-847-124
; Sequence 124, Application US/09614847
; Patent No. 6528486
; GENERAL INFORMATION:
; APPLICANT: Larsen, Bjarne Due
; APPLICANT: Mikkelsen, Jens Mollgaard
; APPLICANT: Neve, Soren
; TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
; FILE REFERENCE: 55511(45487)
; CURRENT APPLICATION NUMBER: US/09/614,847
; CURRENT FILING DATE: 2000-07-12
; PRIOR APPLICATION NUMBER: US 60/143,591
; PRIOR FILING DATE: 1999-07-13
; NUMBER OF SEQ ID NOS: 153
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 124
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; OTHER INFORMATION: GLP-1(7-37)
US-09-614-847-124

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 15
US-09-997-792A-1
; Sequence 1, Application US/09997792A
; Patent No. 6555521
; GENERAL INFORMATION:
;  APPLICANT: ELI LILLY and COMPANY
;  TITLE OF INVENTION: Glucagon-Like Peptide-1 Crystals
;  FILE REFERENCE: X-10242A
;  CURRENT APPLICATION NUMBER: US/09/997,792A
;  CURRENT FILING DATE:  2002-09-30
;  PRIOR APPLICATION NUMBER: US 60/069,728
;  PRIOR FILING DATE: 1997-12-16
;  NUMBER OF SEQ ID NOS: 25
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-997-792A-1

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  Best Local Similarity  100.0%;  Pred. No. 9.9e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


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GenCore version 5.1.6

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Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

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Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
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2	161	100.0	31	9	US-09-851-738-3	Sequence 3, Appli
3	161	100.0	31	9	US-09-805-507-3	Sequence 3, Appli
4	161	100.0	31	10	US-09-859-804-3	Sequence 3, Appli
5	161	100.0	31	10	US-09-982-978-3	Sequence 3, Appli
6	161	100.0	31	10	US-09-953-021B-3	Sequence 3, Appli
7	161	100.0	31	11	US-09-834-229A-1	Sequence 1, Appli
8	161	100.0	31	11	US-09-997-792-1	Sequence 1, Appli
9	161	100.0	31	12	US-10-097-230-2	Sequence 2, Appli
10	161	100.0	31	14	US-10-072-540A-1	Sequence 1, Appli
11	161	100.0	31	15	US-10-093-958-19	Sequence 19, Appl
12	161	100.0	31	15	US-10-169-657-1	Sequence 1, Appli
13	161	100.0	31	15	US-10-091-258-3	Sequence 3, Appli
14	161	100.0	31	15	US-10-055-259-3	Sequence 3, Appli
15	161	100.0	31	15	US-10-287-892-2	Sequence 2, Appli
16	161	100.0	31	15	US-10-288-340-2	Sequence 2, Appli
17	161	100.0	31	15	US-10-265-345A-3	Sequence 3, Appli
18	161	100.0	35	11	US-09-943-084-1	Sequence 1, Appli
19	161	100.0	37	9	US-09-876-388-1	Sequence 1, Appli
20	161	100.0	37	9	US-09-851-738-1	Sequence 1, Appli
21	161	100.0	37	9	US-09-805-507-1	Sequence 1, Appli
22	161	100.0	37	10	US-09-859-804-1	Sequence 1, Appli
23	161	100.0	37	10	US-09-982-978-1	Sequence 1, Appli
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29	161	100.0	37	15	US-10-288-340-1	Sequence 1, Appli
30	161	100.0	52	12	US-10-112-582-29	Sequence 29, Appl
31	158	98.1	31	11	US-09-997-792-11	Sequence 11, Appl
32	157	97.5	31	11	US-09-997-792-5	Sequence 5, Appli
33	157	97.5	31	11	US-09-997-792-14	Sequence 14, Appl
34	157	97.5	31	11	US-09-997-792-16	Sequence 16, Appl
35	157	97.5	31	11	US-09-997-792-17	Sequence 17, Appl
36	157	97.5	31	11	US-09-997-792-25	Sequence 25, Appl
37	157	97.5	31	11	US-09-997-792-29	Sequence 29, Appl
38	157	97.5	31	14	US-10-072-540A-5	Sequence 5, Appli
39	157	97.5	31	15	US-10-169-657-5	Sequence 5, Appli
40	157	97.5	31	15	US-10-169-657-11	Sequence 11, Appl
41	157	97.5	31	15	US-10-169-657-13	Sequence 13, Appl
42	157	97.5	31	15	US-10-169-657-15	Sequence 15, Appl
43	157	97.5	31	15	US-10-169-657-17	Sequence 17, Appl
44	157	97.5	31	15	US-10-169-657-19	Sequence 19, Appl
45	157	97.5	31	15	US-10-169-657-21	Sequence 21, Appl

ALIGNMENTS

RESULT 1
US-09-876-388-2
; Sequence 2, Application US/09876388
; Patent No. US20020049153A1
; GENERAL INFORMATION:
; APPLICANT: Bridon, Dominique P.
; APPLICANT: L'Archeveque, Benoit
; APPLICANT: Ezrin, Alan M.
; APPLICANT: Holmes, Darren L.
; APPLICANT: Leblanc, Anouk
; APPLICANT: St. Pierre, Serge
; TITLE OF INVENTION: LONG LASTING INSULINOTROPIC PEPTIDES
; FILE REFERENCE: 500862001610
; CURRENT APPLICATION NUMBER: US/09/876,388
; CURRENT FILING DATE: 2001-09-24
; PRIOR APPLICATION NUMBER: 09/623,618
; PRIOR FILING DATE: 2000-09-05
; PRIOR APPLICATION NUMBER: PCT/US00/13563
; PRIOR FILING DATE: 2000-05-17
; PRIOR APPLICATION NUMBER: 60/159,783
; PRIOR FILING DATE: 1999-10-15
; PRIOR APPLICATION NUMBER: 60/134,406
; PRIOR FILING DATE: 1999-05-17
; NUMBER OF SEQ ID NOS: 35
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 2
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:
; OTHER INFORMATION: Description of Artificial Sequence: Synthetic
; OTHER INFORMATION: Peptide
US-09-876-388-2

Query Match 100.0%; Score 161; DB 9; Length 31;
Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 2
US-09-851-738-3
; Sequence 3, Application US/09851738
; Patent No. US20020055460A1
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas R.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
;  TITLE OF INVENTION:  Ischemic and Reperfused Tissue
;  FILE REFERENCE: P03660US1
;  CURRENT APPLICATION NUMBER: US/09/851,738
;  CURRENT FILING DATE:  2001-05-09
;  PRIOR APPLICATION NUMBER: 09/302,596
;  PRIOR FILING DATE: 1999-04-30
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: mammalian
US-09-851-738-3

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RESULT 3
US-09-805-507-3
; Sequence 3, Application US/09805507
; Patent No. US20020098195A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/805,507
;  CURRENT FILING DATE:  2001-03-14
;  PRIOR APPLICATION NUMBER: 09/859,804
;  PRIOR FILING DATE: 2001-05-18
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-805-507-3

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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 4
US-09-859-804-3
; Sequence 3, Application US/09859804
; Patent No. US20020107206A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/859,804
;  CURRENT FILING DATE:  2001-05-18
;  PRIOR APPLICATION NUMBER: 60/205,239
;  PRIOR FILING DATE: 2000-05-19
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-859-804-3

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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 5
US-09-982-978-3
; Sequence 3, Application US/09982978
; Patent No. US20020146405A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/982,978
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 09/859,804
;  PRIOR FILING DATE: 2001-05-18
;  PRIOR APPLICATION NUMBER: 60/205,239
;  PRIOR FILING DATE: 2000-05-19
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-982-978-3

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RESULT 6
US-09-953-021B-3
; Sequence 3, Application US/09953021B
; Patent No. US20020147131A1
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas L.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of I
;  TITLE OF INVENTION:  Reperfused Skeletal Muscle Tissue
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; FILE REFERENCE: P03660US6
; CURRENT APPLICATION NUMBER: US/09/953,021B
; CURRENT FILING DATE: 2001-09-11
; PRIOR APPLICATION NUMBER: 09/302,596
; PRIOR FILING DATE: 1999-04-30
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 3
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-953-021B-3

Query Match 100.0%; Score 161; DB 10; Length 31;
Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 7
US-09-834-229A-1
; Sequence 1, Application US/09834229A
; Publication No. US20030022823A1
; GENERAL INFORMATION:
; APPLICANT: Efendic, Suad
; TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF MYOCARDIAL INFARCTION
; FILE REFERENCE: X-10822A
; CURRENT APPLICATION NUMBER: US/09/834,229A
; CURRENT FILING DATE: 2001-04-12
; PRIOR APPLICATION NUMBER: US 08/915,918
; PRIOR FILING DATE: 1997-08-21
; PRIOR APPLICATION NUMBER: US 06/024,980
; PRIOR FILING DATE: 1996-08-30
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-834-229A-1

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Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 8
US-09-997-792-1
; Sequence 1, Application US/09997792
; Publication No. US20030045464A1
; GENERAL INFORMATION:
; APPLICANT: Hermeling, Ronald
; APPLICANT: Hoffmann, James
; APPLICANT: Narasimhan, Chakravarthy
; TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
; FILE REFERENCE: X-10242
; CURRENT APPLICATION NUMBER: US/09/997,792
; CURRENT FILING DATE: 2001-11-30
; NUMBER OF SEQ ID NOS: 29
; SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-997-792-1

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Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

RESULT 9
US-10-097-230-2
; Sequence 2, Application US/10097230
; Publication No. US20030186436A1
; GENERAL INFORMATION:
; APPLICANT: Perfetti, Riccardo
; APPLICANT: Hui, Hongxiang
; TITLE OF INVENTION: Glucose-Dependent Insulin-Secreting Cells Transfected with a
; TITLE OF INVENTION: Sequence Encoding GLP-1
; FILE REFERENCE: 81476-0249704
; CURRENT APPLICATION NUMBER: US/10/097,230
; CURRENT FILING DATE: 2002-03-12
; NUMBER OF SEQ ID NOS: 9
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-097-230-2

Query Match 100.0%; Score 161; DB 12; Length 31;
Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 10
US-10-072-540A-1
; Sequence 1, Application US/10072540A
; Publication No. US20020123466A1
; GENERAL INFORMATION:
; APPLICANT: Hoffmann, James
; TITLE OF INVENTION: GLP-1 FORMULATIONS
; FILE REFERENCE: X-11368A
; CURRENT APPLICATION NUMBER: US/10/072,540A
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: US 60/067,600
; PRIOR FILING DATE: 1997-12-05
; NUMBER OF SEQ ID NOS: 5
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
US-10-072-540A-1

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Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 11
US-10-093-958-19
; Sequence 19, Application US/10093958
; Publication No. US20030044423A1
; GENERAL INFORMATION:
; APPLICANT: Gillies, Stephen

```
;  APPLICANT:  Jeffrey, Way
;  TITLE OF INVENTION: Expression Technology for Proteins Containing a Hybrid Isotype An
;  TITLE OF INVENTION:  Moiety
;  FILE REFERENCE: LEX-016
;  CURRENT APPLICATION NUMBER: US/10/093,958
;  CURRENT FILING DATE:  2002-03-07
;  PRIOR APPLICATION NUMBER: US 60/274,096
;  PRIOR FILING DATE: 2001-03-07
;  NUMBER OF SEQ ID NOS: 50
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 19
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: artificial sequence
;   FEATURE:
;   OTHER INFORMATION: glucagon-like peptide 1
US-10-093-958-19

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RESULT 12
US-10-169-657-1
; Sequence 1, Application US/10169657
; Publication No. US20030060412A1
; GENERAL INFORMATION:
;  APPLICANT: Eli Lilly and Company
;  TITLE OF INVENTION: Process for Solubilizing Glucagon-Like Peptide 1 Compounds
;  FILE REFERENCE: X-11708
;  CURRENT APPLICATION NUMBER: US/10/169,657
;  CURRENT FILING DATE:  2002-06-28
;  PRIOR APPLICATION NUMBER: US 60/178,438
;  PRIOR FILING DATE: 2000-01-27
;  PRIOR APPLICATION NUMBER: US 60/224,058
;  PRIOR FILING DATE: 2000-08-09
;  NUMBER OF SEQ ID NOS: 36
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-169-657-1

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  Best Local Similarity  100.0%;  Pred. No. 5.2e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 13
US-10-091-258-3
; Sequence 3, Application US/10091258
; Publication No. US20030073626A1
; GENERAL INFORMATION:
;  APPLICANT: Hathaway, David R
;  APPLICANT:  Coolidge, Thomas R
;  TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING PERIPHERAL VASCULAR DISEASE
;  FILE REFERENCE: RGN-2
;  CURRENT APPLICATION NUMBER: US/10/091,258
;  CURRENT FILING DATE:  2002-03-05
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: mammalian
US-10-091-258-3

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  Best Local Similarity  100.0%;  Pred. No. 5.2e-17;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 14
US-10-055-259-3
; Sequence 3, Application US/10055259
; Publication No. US20030091507A1
; GENERAL INFORMATION:
;  APPLICANT: Holst, Jens J.
;  APPLICANT:  Vilsboll, Tina
;  TITLE OF INVENTION: GLP-1 AS A DIAGNOSTIC TEST TO DETERMINE Beta-CELL FUNCTION AN
;  TITLE OF INVENTION:  PRESENCE OF THE CONDITION OF IGT AND TYPE-II DIABETES
;  FILE REFERENCE: P03987US1
;  CURRENT APPLICATION NUMBER: US/10/055,259
;  CURRENT FILING DATE:  2002-06-21
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-055-259-3

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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 15
US-10-287-892-2
; Sequence 2, Application US/10287892
; Publication No. US20030108567A1
; GENERAL INFORMATION:
;  APPLICANT: Bridon, Dominique P.
;  APPLICANT:  L'Archeveque, Benoit
;  APPLICANT:  Ezrin, Alan M.
;  APPLICANT:  Holmes, Darren L.
;  APPLICANT:  Leblanc, Anouk
;  APPLICANT:  St. Pierre, Serge
;  TITLE OF INVENTION: LONG LASTING SYNTHETIC GLUCAGON LIKE PEPTIDE (GLP-1)
;  FILE REFERENCE: 500862001612
;  CURRENT APPLICATION NUMBER: US/10/287,892
;  CURRENT FILING DATE:  2002-11-04
;  PRIOR APPLICATION NUMBER: 09/657,332
;  PRIOR FILING DATE: 2000-09-07
;  PRIOR APPLICATION NUMBER: 60/159,783
;  PRIOR FILING DATE: 1999-10-15
;  NUMBER OF SEQ ID NOS: 35
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Peptide
US-10-287-892-2

  Query Match           100.0%;  Score 161;  DB 15;  Length 31;
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Best Local Similarity 100.0%; Pred. No. 5.2e-17;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	31	1	PCT-US01-43165-1	Sequence 1, Appli
2	161	100.0	31	1	PCT-US02-07011-19	Sequence 19, Appl
3	161	100.0	31	1	PCT-US02-13088-3	Sequence 3, Appli
4	161	100.0	31	1	PCT-US02-21325-3	Sequence 3, Appli
5	161	100.0	31	1	PCT-US02-25227-21	Sequence 21, Appl
6	161	100.0	31	1	PCT-US02-31693A-3	Sequence 3, Appli
7	161	100.0	31	1	PCT-US03-00001-5	Sequence 5, Appli
8	161	100.0	31	1	PCT-US03-16643-32	Sequence 32, Appl
9	161	100.0	31	1	PCT-US03-16645-5	Sequence 5, Appli
10	161	100.0	31	1	PCT-US97-01978-3	Sequence 3, Appli
11	161	100.0	31	1	PCT-US98-25515-1	Sequence 1, Appli
12	161	100.0	31	1	PCT-US98-26480-1	Sequence 1, Appli
13	161	100.0	31	3	US-07-899-073-2	Sequence 2, Appli
14	161	100.0	31	4	US-08-044-133-2	Sequence 2, Appli
15	161	100.0	31	7	US-08-350-709-12	Sequence 12, Appl
16	161	100.0	31	7	US-08-356-231-2	Sequence 2, Appli
17	161	100.0	31	9	US-08-520-485-3	Sequence 3, Appli
18	161	100.0	31	12	US-08-842-121A-1	Sequence 1, Appli
19	161	100.0	31	12	US-08-860-103A-2	Sequence 2, Appli
20	161	100.0	31	13	US-08-908-867-37	Sequence 37, Appl
21	161	100.0	31	13	US-08-908-867A-37	Sequence 37, Appl
22	161	100.0	31	13	US-08-908-867-37	Sequence 37, Appl
23	161	100.0	31	14	US-09-091-605-3	Sequence 3, Appli
24	161	100.0	31	16	US-09-206-601-17	Sequence 17, Appl
25	161	100.0	31	16	US-09-206-833-2	Sequence 2, Appli
26	161	100.0	31	16	US-09-206-833-4	Sequence 4, Appli
27	161	100.0	31	18	US-09-400-802A-1	Sequence 1, Appli
28	161	100.0	31	18	US-09-475-158-23	Sequence 23, Appl
29	161	100.0	31	18	US-09-475-158A-23	Sequence 23, Appl
30	161	100.0	31	19	US-09-586-186-1	Sequence 1, Appli
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33	161	100.0	31	22	US-09-762-538-2	Sequence 2, Appli
34	161	100.0	31	23	US-09-834-229A-1	Sequence 1, Appli
35	161	100.0	31	23	US-09-851-738-3	Sequence 3, Appli
36	161	100.0	31	23	US-09-858-880-4	Sequence 4, Appli
37	161	100.0	31	23	US-09-859-804-3	Sequence 3, Appli
38	161	100.0	31	23	US-09-876-388-2	Sequence 2, Appli
39	161	100.0	31	25	US-09-953-021-3	Sequence 3, Appli
40	161	100.0	31	25	US-09-953-021B-3	Sequence 3, Appli
41	161	100.0	31	25	US-09-982-978-3	Sequence 3, Appli
42	161	100.0	31	26	US-10-055-259-3	Sequence 3, Appli
43	161	100.0	31	26	US-10-072-540A-1	Sequence 1, Appli
44	161	100.0	31	26	US-10-091-258-3	Sequence 3, Appli
45	161	100.0	31	26	US-10-093-958-19	Sequence 19, Appl

ALIGNMENTS

RESULT 1
PCT-US01-43165-1
; Sequence 1, Application PC/TUS0143165
; GENERAL INFORMATION:
; APPLICANT: Eli Lilly and Company
; TITLE OF INVENTION: GLP-1 FUSION PROTEINS
; FILE REFERENCE: X-13991
; CURRENT APPLICATION NUMBER: PCT/US01/43165
; CURRENT FILING DATE: 2002-10-10
; PRIOR APPLICATION NUMBER: US 60/251,954
; PRIOR FILING DATE: 2000-06-12
; NUMBER OF SEQ ID NOS: 35
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
PCT-US01-43165-1

Query Match 100.0%; Score 161; DB 1; Length 31;
Best Local Similarity 100.0%; Pred. No. 2.1e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 2
PCT-US02-07011-19
; Sequence 19, Application PC/TUS0207011
; GENERAL INFORMATION:
;  APPLICANT: Lexigen Pharmaceuticals Corp.
;  APPLICANT:  Gillies, Stephen
;  APPLICANT:  Way, Jeffrey
;  TITLE OF INVENTION: Expression Technology for Proteins Containing a Hybrid Isotype An
;  TITLE OF INVENTION:  Moiety
;  FILE REFERENCE: LEX-016PC
;  CURRENT APPLICATION NUMBER: PCT/US02/07011
;  CURRENT FILING DATE:  2002-03-07
;  PRIOR APPLICATION NUMBER: US 60/274,096
;  PRIOR FILING DATE: 2001-03-07
;  NUMBER OF SEQ ID NOS: 50
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 19
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: artificial sequence
;   FEATURE:
;   OTHER INFORMATION: glucagon-like peptide 1
PCT-US02-07011-19

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 3
PCT-US02-13088-3
; Sequence 3, Application PC/TUS0213088
; GENERAL INFORMATION:
;  APPLICANT: Restoragen, Inc.
;  TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR TREATING CONDITIONS ASSOCIATED WITH
;  TITLE OF INVENTION:  RESISTANCE
;  FILE REFERENCE: RGN-3
;  CURRENT APPLICATION NUMBER: PCT/US02/13088
;  CURRENT FILING DATE:  2002-04-24
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: mammalian
PCT-US02-13088-3

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 4
PCT-US02-21325-3
; Sequence 3, Application PC/TUS0221325
; GENERAL INFORMATION:
;  APPLICANT: Eli Lilly & Company
;  TITLE OF INVENTION: Glucagon-Like Peptide-1 Analogs
;  FILE REFERENCE: X-15045
;  CURRENT APPLICATION NUMBER: PCT/US02/21325
;  CURRENT FILING DATE:  2002-08-14
;  PRIOR APPLICATION NUMBER: 60/314,573
;  PRIOR FILING DATE: 2001-08-23
;  NUMBER OF SEQ ID NOS: 3
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US02-21325-3

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 5
PCT-US02-25227-21
; Sequence 21, Application PC/TUS0225227
; GENERAL INFORMATION:
;  APPLICANT: Genzyme Corporation
;  APPLICANT:  Wadsworth, Samuel C.
;  APPLICANT:  Armentano, Donna
;  APPLICANT:  Gregory, Richard J.
;  APPLICANT:  Parsons, Geoffrey
;  TITLE OF INVENTION: Methods of Treating Diabetes and Other
;  TITLE OF INVENTION:  Blood Sugar Disorders
;  FILE REFERENCE: 2478.2019002 PCT
;  CURRENT APPLICATION NUMBER: PCT/US02/25227
;  CURRENT FILING DATE:  2002-08-07
;  PRIOR APPLICATION NUMBER: US 60/310,982
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 21
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37)
PCT-US02-25227-21

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 6
PCT-US02-31693A-3
; Sequence 3, Application PC/TUS0231693A
; GENERAL INFORMATION:
;  APPLICANT: Bayer Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  APPLICANT:  Clairmont, Kevin B.
;  TITLE OF INVENTION: Peptides Acting as Both GLP-1 Receptor Agonists and Glucagon
;  TITLE OF INVENTION:  Receptor Antagonists and Their Pharmacological Methods of Use
;  FILE REFERENCE: MSB-7288-PCT
;  CURRENT APPLICATION NUMBER: PCT/US02/31693A
;  CURRENT FILING DATE:  2002-12-19
;  PRIOR APPLICATION NUMBER: US 60/327,730
;  PRIOR FILING DATE: 2001-10-05
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 3
;   LENGTH: 31
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;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US02-31693A-3

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 7
PCT-US03-00001-5
; Sequence 5, Application PC/TUS0300001
; GENERAL INFORMATION:
;  APPLICANT: ELI LILLY AND COMPANY
;  TITLE OF INVENTION: EXTENDED GLUCAGON-LIKE PEPTIDE-1 ANALOGS
;  FILE REFERENCE: X-15133
;  CURRENT APPLICATION NUMBER: PCT/US03/00001
;  CURRENT FILING DATE:  2003-01-03
;  NUMBER OF SEQ ID NOS: 60
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US03-00001-5

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 8
PCT-US03-16643-32
; Sequence 32, Application PC/TUS0316643
; GENERAL INFORMATION:
;  APPLICANT: Wagner, F.
;  APPLICANT:  Peng, L.
;  APPLICANT:  Xia, U.
;  APPLICANT:  Holmquist, B.
;  TITLE OF INVENTION: Methods and DNA Constructs for High Yield Production of Polypepti
;  FILE REFERENCE: 1627.010WO1
;  CURRENT APPLICATION NUMBER: PCT/US03/16643
;  CURRENT FILING DATE:  2003-05-23
;  PRIOR APPLICATION NUMBER: US 60/383,370
;  PRIOR FILING DATE: 2002-05-24
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 32
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Unknown
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37).
PCT-US03-16643-32

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  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 9
PCT-US03-16645-5
; Sequence 5, Application PC/TUS0316645
; GENERAL INFORMATION:
;  APPLICANT: Wagner, F.
;  APPLICANT:  Peng, L.
;  APPLICANT:  Xia, U.
;  APPLICANT:  Holmquist, B.
;  TITLE OF INVENTION: Methods and DNA Constructs for High Yield Production of Polyp
;  FILE REFERENCE: 1627.009WO1
;  CURRENT APPLICATION NUMBER: PCT/US03/16645
;  CURRENT FILING DATE:  2003-05-23
;  PRIOR APPLICATION NUMBER: US 60/383,212
;  PRIOR FILING DATE: 2002-05-24
;  NUMBER OF SEQ ID NOS: 93
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 5
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Unknown
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37)
PCT-US03-16645-5

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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 10
PCT-US97-01978-3
; Sequence 3, Application PC/TUS9701978
;  GENERAL INFORMATION:
;    APPLICANT:  Borts, Tracy L.
;    APPLICANT:  Broderick, Carol L.
;    APPLICANT:  DiMarchi, Richard D.
;    APPLICANT:  Grinnell, Brian W.
;    APPLICANT:  Miller, Anne R.
;    TITLE OF INVENTION:  DIABETES THERAPY
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Eli Lilly and Company
;      STREET:  Lilly Corporate Center
;      CITY:  Indianapolis
;      STATE:  Indiana
;      COUNTRY:  USA
;      ZIP:  46285
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  PCT/US97/01978
;      FILING DATE:  06-FEB-1997
;      CLASSIFICATION:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Maciak, Ronald S.
;      REGISTRATION NUMBER:  35,262
;      REFERENCE/DOCKET NUMBER:  X-9872
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (317)276-1664
;      TELEFAX:  (317)277-1917
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  protein
PCT-US97-01978-3
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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 11
PCT-US98-25515-1
; Sequence 1, Application PC/TUS9825515
; GENERAL INFORMATION:
;  APPLICANT: Hoffmann, James A.
;  TITLE OF INVENTION: GLP-1 FORMULATIONS
;  FILE REFERENCE: X-11368
;  CURRENT APPLICATION NUMBER: PCT/US98/25515
;  CURRENT FILING DATE: 1998-12-02
;  EARLIER APPLICATION NUMBER: US60/067,600
;  EARLIER FILING DATE: 1997-12-05
;  NUMBER OF SEQ ID NOS: 5
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US98-25515-1

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  Best Local Similarity  100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 12
PCT-US98-26480-1
; Sequence 1, Application PC/TUS9826480A
; GENERAL INFORMATION:
;  APPLICANT: Eli Lilly and Company
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242 PCT
;  CURRENT APPLICATION NUMBER: PCT/US98/26480A
;  CURRENT FILING DATE: 1998-12-14
;  EARLIER APPLICATION NUMBER: US 60/069728
;  EARLIER FILING DATE: 1997-12-16
;  NUMBER OF SEQ ID NOS: 4
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US98-26480-1

  Query Match           100.0%;  Score 161;  DB 1;  Length 31;
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  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 13
US-07-899-073-2
; Sequence 2, Application US/07899073
;  GENERAL INFORMATION:
;    APPLICANT:  Andrews, Glenn C.
;    APPLICANT:  Daumy, Gaston O.
;    APPLICANT:  Francoeur, Michael L.
;    APPLICANT:  Larson, Eric R.
;    TITLE OF INVENTION:  GLUCAGON-LIKE PEPTIDE AND INSULINOTROPIN
;    TITLE OF INVENTION:  DERIVATIVES
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Gregg C. Benson, Pfizer Inc
;      STREET:  Eastern Point Road
;      CITY:  Groton
;      STATE:  CT
;      COUNTRY:  USA
;      ZIP:  06340
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/07/899,073
;      FILING DATE:  19920615
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Benson, Gregg C.
;      REGISTRATION NUMBER:  30,997
;      REFERENCE/DOCKET NUMBER:  PC8156GCB
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203) 441-4901
;      TELEFAX:  (203) 441-5221
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  AMINO ACID
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-07-899-073-2

  Query Match           100.0%;  Score 161;  DB 3;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 14
US-08-044-133-2
; Sequence 2, Application US/08044133
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/044,133
;      FILING DATE:  07-APR-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
```

```
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  2:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
;      UNITS:  N/A
US-08-044-133-2

  Query Match             100.0%;  Score 161;  DB 4;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 15
US-08-350-709-12
; Sequence 12, Application US/08350709
;  GENERAL INFORMATION:
;    APPLICANT:  NISHIMURA, OSAMU
;    APPLICANT:  KURIYAMA, MASATO
;    APPLICANT:  KOYAMA, NOBUYUKI
;    APPLICANT:  FUKUDA, TSUNEHIKO
;    TITLE OF INVENTION:  METHOD FOR PRODUCING A PEPTIDE
;    NUMBER OF SEQUENCES:  36
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS &
;      ADDRESSEE:  CUSHMAN
;      STREET:  130 WATER STREET
;      CITY:  BOSTON
;      STATE:  MASSACHUSETTS
;      COUNTRY:  US
;      ZIP:  02109
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/350,709
;      FILING DATE:
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 07/838857
;      FILING DATE:  18-FEB-1992
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  JP 024841-1991
;      FILING DATE:  19-FEB-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  JP 0271438-1991
;      FILING DATE:  18-OCT-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  JP 0277724-1991
;      FILING DATE:  24-OCT-1991
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  JP 0198056-1991
;      FILING DATE:  07-AUG-1991
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  WILLIAMS, GREGORY D.
;      REGISTRATION NUMBER:  30901
;      REFERENCE/DOCKET NUMBER:  41614
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (617) 523-3400
;      TELEFAX:  (617) 523-6440
;      TELEX:  200291 STRE UR
;  INFORMATION FOR SEQ ID NO:  12:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  31 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
US-08-350-709-12

  Query Match             100.0%;  Score 161;  DB 7;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 2.1e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


Search completed: October 15, 2003, 11:07:20
Job time : 296.262 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:53:47 ; Search time 15.2459 Seconds
(without alignments)
62.284 Million cell updates/sec

Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 148013 seqs, 30631251 residues

Total number of hits satisfying chosen parameters: 148013

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Pending_Patents_AA_New:*
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2: /cgn2_6/ptodata/1/paa/US06_NEW_COMB.pep:*
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4: /cgn2_6/ptodata/1/paa/US08_NEW_COMB.pep:*
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7: /cgn2_6/ptodata/1/paa/US60_NEW_COMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	31	1	PCT-US03-15395B-16	Sequence 16, Appl
2	161	100.0	31	1	PCT-US03-26818-64	Sequence 64, Appl
3	161	100.0	31	1	PCT-US03-28093-2	Sequence 2, Appli
4	161	100.0	31	6	US-10-291-226-124	Sequence 124, App
5	161	100.0	31	6	US-10-656-405-2	Sequence 2, Appli
6	161	100.0	32	1	PCT-US03-28093-27	Sequence 27, Appl
7	161	100.0	32	6	US-10-656-405-27	Sequence 27, Appl
8	157	97.5	31	6	US-10-291-226-123	Sequence 123, App
9	157	97.5	32	1	PCT-US03-28093-28	Sequence 28, Appl
10	157	97.5	32	6	US-10-291-226-147	Sequence 147, App
11	157	97.5	32	6	US-10-656-405-28	Sequence 28, Appl
12	157	97.5	37	6	US-10-291-226-122	Sequence 122, App
13	155	96.3	30	1	PCT-US03-26778-14	Sequence 14, Appl
14	155	96.3	30	1	PCT-US03-26818-48	Sequence 48, Appl
15	155	96.3	30	1	PCT-US03-28093-1	Sequence 1, Appli
16	155	96.3	30	5	US-09-341-590A-118	Sequence 118, App
17	155	96.3	30	6	US-10-291-226-114	Sequence 114, App
18	155	96.3	30	6	US-10-656-405-1	Sequence 1, Appli
19	155	96.3	30	6	US-10-671-340-1	Sequence 1, Appli
20	155	96.3	31	1	PCT-US03-26779-34	Sequence 34, Appl
21	155	96.3	31	1	PCT-US03-26778-6	Sequence 6, Appli
22	155	96.3	31	1	PCT-US03-26818-6	Sequence 6, Appli
23	155	96.3	31	7	US-60-485-404-34	Sequence 34, Appl
24	155	96.3	32	1	PCT-US03-28093-30	Sequence 30, Appl
25	155	96.3	32	6	US-10-656-405-30	Sequence 30, Appl
26	155	96.3	36	5	US-09-341-590A-92	Sequence 92, Appl
27	153	95.0	32	1	PCT-US03-28093-29	Sequence 29, Appl
28	153	95.0	32	6	US-10-656-405-29	Sequence 29, Appl
29	152	94.4	36	6	US-10-291-226-115	Sequence 115, App
30	151	93.8	30	6	US-10-291-226-87	Sequence 87, Appl
31	151	93.8	30	6	US-10-291-226-112	Sequence 112, App
32	151	93.8	30	6	US-10-291-226-113	Sequence 113, App
33	151	93.8	31	6	US-10-291-226-111	Sequence 111, App
34	151	93.8	36	6	US-10-291-226-88	Sequence 88, Appl
35	151	93.8	36	6	US-10-291-226-90	Sequence 90, Appl
36	151	93.8	36	6	US-10-291-226-103	Sequence 103, App
37	151	93.8	36	6	US-10-291-226-116	Sequence 116, App
38	151	93.8	36	6	US-10-291-226-119	Sequence 119, App
39	151	93.8	37	6	US-10-291-226-117	Sequence 117, App
40	151	93.8	37	6	US-10-291-226-153	Sequence 153, App
41	151	93.8	38	6	US-10-291-226-89	Sequence 89, Appl
42	151	93.8	38	6	US-10-291-226-120	Sequence 120, App
43	151	93.8	40	6	US-10-291-226-121	Sequence 121, App
44	151	93.8	42	6	US-10-291-226-118	Sequence 118, App
45	150	93.2	29	1	PCT-US03-26778-8	Sequence 8, Appli

ALIGNMENTS

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RESULT 1
PCT-US03-15395B-16
; Sequence 16, Application PC/TUS0315395B
; GENERAL INFORMATION:
;  APPLICANT: Eli Lilly and Company
;  TITLE OF INVENTION: MODIFIED GLUCAGON-LIKE PEPTIDE-1 ANALOGS
;  FILE REFERENCE: X-15642
;  CURRENT APPLICATION NUMBER: PCT/US03/15395B
;  CURRENT FILING DATE:  2003-06-02
;  NUMBER OF SEQ ID NOS: 24
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 16
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: Synthetic construct
PCT-US03-15395B-16

  Query Match            100.0%;  Score 161;  DB 1;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 2
PCT-US03-26818-64
; Sequence 64, Application PC/TUS0326818
; GENERAL INFORMATION:
;  APPLICANT: PRIOR, Christopher P.
;  APPLICANT:  LAI, Char-Huei
;  APPLICANT:  SADEGHI, Homayoun
;  APPLICANT:  TURNER, Andrew J.
;  TITLE OF INVENTION: MODIFIED TRANSFERRIN FUSION PROTEINS
;  FILE REFERENCE: 54710-5001-01-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26818
;  CURRENT FILING DATE:  2003-08-28
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  NUMBER OF SEQ ID NOS: 90
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 64
;   LENGTH: 31
;   TYPE: PRT
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;   ORGANISM: Artificial sequence
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37) amino acid sequence
PCT-US03-26818-64

  Query Match             100.0%;  Score 161;  DB 1;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 3
PCT-US03-28093-2
; Sequence 2, Application PC/TUS0328093
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: PCT/US03/28093
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US03-28093-2

  Query Match             100.0%;  Score 161;  DB 1;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 4
US-10-291-226-124
; Sequence 124, Application US/10291226
; GENERAL INFORMATION:
;  APPLICANT: Larsen, Bjarne Due
;  APPLICANT:  Mikkelsen, Jens Mollgaard
;  APPLICANT:  Neve, Soren
;  TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
;  FILE REFERENCE: 55511(45487)
;  CURRENT APPLICATION NUMBER: US/10/291,226
;  CURRENT FILING DATE:  2002-11-08
;  PRIOR APPLICATION NUMBER: US/09/614,847
;  PRIOR FILING DATE: 12000-07-12
;  PRIOR APPLICATION NUMBER: US 60/143,591
;  PRIOR FILING DATE: 1999-07-13
;  NUMBER OF SEQ ID NOS: 153
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 124
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37)
US-10-291-226-124

  Query Match             100.0%;  Score 161;  DB 6;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 5
US-10-656-405-2
; Sequence 2, Application US/10656405
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: US/10/656,405
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-656-405-2

  Query Match             100.0%;  Score 161;  DB 6;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 6
PCT-US03-28093-27
; Sequence 27, Application PC/TUS0328093
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: PCT/US03/28093
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 27
;   LENGTH: 32
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US03-28093-27

  Query Match             100.0%;  Score 161;  DB 1;  Length 32;
  Best Local Similarity   100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
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RESULT 7
US-10-656-405-27
; Sequence 27, Application US/10656405
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: US/10/656,405
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 27
;   LENGTH: 32
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-656-405-27

  Query Match           100.0%;  Score 161;  DB 6;  Length 32;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 8
US-10-291-226-123
; Sequence 123, Application US/10291226
; GENERAL INFORMATION:
;  APPLICANT: Larsen, Bjarne Due
;  APPLICANT:  Mikkelsen, Jens Mollgaard
;  APPLICANT:  Neve, Soren
;  TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
;  FILE REFERENCE: 55511(45487)
;  CURRENT APPLICATION NUMBER: US/10/291,226
;  CURRENT FILING DATE:  2002-11-08
;  PRIOR APPLICATION NUMBER: US/09/614,847
;  PRIOR FILING DATE: 12000-07-12
;  PRIOR APPLICATION NUMBER: US 60/143,591
;  PRIOR FILING DATE: 1999-07-13
;  NUMBER OF SEQ ID NOS: 153
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 123
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Gly8-GLP-1(7-37)
US-10-291-226-123

  Query Match           97.5%;  Score 157;  DB 6;  Length 31;
  Best Local Similarity  96.8%;  Pred. No. 1.1e-14;
  Matches   30;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

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              | ||||||||||||||||||||||||||||||
Db          1 HGEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 9
PCT-US03-28093-28
; Sequence 28, Application PC/TUS0328093
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: PCT/US03/28093
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 28
;   LENGTH: 32
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US03-28093-28

  Query Match           97.5%;  Score 157;  DB 1;  Length 32;
  Best Local Similarity  96.8%;  Pred. No. 1.1e-14;
  Matches   30;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||| |||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFICWLVKGRG 31


RESULT 10
US-10-291-226-147
; Sequence 147, Application US/10291226
; GENERAL INFORMATION:
;  APPLICANT: Larsen, Bjarne Due
;  APPLICANT:  Mikkelsen, Jens Mollgaard
;  APPLICANT:  Neve, Soren
;  TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
;  FILE REFERENCE: 55511(45487)
;  CURRENT APPLICATION NUMBER: US/10/291,226
;  CURRENT FILING DATE:  2002-11-08
;  PRIOR APPLICATION NUMBER: US/09/614,847
;  PRIOR FILING DATE: 12000-07-12
;  PRIOR APPLICATION NUMBER: US 60/143,591
;  PRIOR FILING DATE: 1999-07-13
;  NUMBER OF SEQ ID NOS: 153
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 147
;   LENGTH: 32
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (32)
;   OTHER INFORMATION: Lys(palmitoyl)
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:
;   OTHER INFORMATION: Gly8-Glp-1(7-36)-Lys37(palmitoyl)(Human)
US-10-291-226-147

  Query Match           97.5%;  Score 157;  DB 6;  Length 32;
  Best Local Similarity  96.8%;  Pred. No. 1.1e-14;
  Matches   30;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              | ||||||||||||||||||||||||||||||
Db          1 HGEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 11
US-10-656-405-28
; Sequence 28, Application US/10656405
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
```

```
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: US/10/656,405
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 28
;   LENGTH: 32
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-656-405-28

  Query Match           97.5%;  Score 157;  DB 6;  Length 32;
  Best Local Similarity   96.8%;  Pred. No. 1.1e-14;
  Matches   30;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||| |||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFICWLVKGRG 31


RESULT 12
US-10-291-226-122
; Sequence 122, Application US/10291226
; GENERAL INFORMATION:
;  APPLICANT: Larsen, Bjarne Due
;  APPLICANT:  Mikkelsen, Jens Mollgaard
;  APPLICANT:  Neve, Soren
;  TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
;  FILE REFERENCE: 55511(45487)
;  CURRENT APPLICATION NUMBER: US/10/291,226
;  CURRENT FILING DATE:  2002-11-08
;  PRIOR APPLICATION NUMBER: US/09/614,847
;  PRIOR FILING DATE: 12000-07-12
;  PRIOR APPLICATION NUMBER: US 60/143,591
;  PRIOR FILING DATE: 1999-07-13
;  NUMBER OF SEQ ID NOS: 153
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 122
;   LENGTH: 37
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:
;   OTHER INFORMATION: Gly8-GLP-1(7-37)-Lys6
US-10-291-226-122

  Query Match           97.5%;  Score 157;  DB 6;  Length 37;
  Best Local Similarity   96.8%;  Pred. No. 1.2e-14;
  Matches   30;  Conservative    0;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              | ||||||||||||||||||||||||||||||
Db          1 HGEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31


RESULT 13
PCT-US03-26778-14
; Sequence 14, Application PC/TUS0326778
; GENERAL INFORMATION:
;  APPLICANT: PRIOR, Christopher P.
;  APPLICANT:  SADEGHI, Homayoun
;  APPLICANT:  TURNER, Andrew J.
;  TITLE OF INVENTION: ORAL DELIVERY OF MODIFIED TRANSFERRIN FUSION PROTEINS
;  FILE REFERENCE: 54710-5006-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26778
;  CURRENT FILING DATE:  2003-08-28
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  PRIOR APPLICATION NUMBER: US 60/460,829
;  PRIOR FILING DATE: 2003-04-08
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 14
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial sequence
;   FEATURE:
;   OTHER INFORMATION: glucagon-like peptide-1
PCT-US03-26778-14

  Query Match           96.3%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.9e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 14
PCT-US03-26818-48
; Sequence 48, Application PC/TUS0326818
; GENERAL INFORMATION:
;  APPLICANT: PRIOR, Christopher P.
;  APPLICANT:  LAI, Char-Huei
;  APPLICANT:  SADEGHI, Homayoun
;  APPLICANT:  TURNER, Andrew J.
;  TITLE OF INVENTION: MODIFIED TRANSFERRIN FUSION PROTEINS
;  FILE REFERENCE: 54710-5001-01-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26818
;  CURRENT FILING DATE:  2003-08-28
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  NUMBER OF SEQ ID NOS: 90
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 48
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial sequence
;   FEATURE:
;   OTHER INFORMATION: glucagon-like peptide-1
PCT-US03-26818-48

  Query Match           96.3%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.9e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 15
PCT-US03-28093-1
; Sequence 1, Application PC/TUS0328093
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: PCT/US03/28093
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
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;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US03-28093-1

  Query Match             96.3%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.9e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


Search completed: October 15, 2003, 11:07:58
Job time : 16.2459 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:49:12 ; Search time 25.4098 Seconds
(without alignments)
117.326 Million cell updates/sec

Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	158	1	GCPG	glucagon precursor
2	161	100.0	180	1	GCHU	glucagon precursor
3	161	100.0	180	1	GCGP	glucagon precursor
4	161	100.0	180	1	GCRTDU	glucagon precursor
5	161	100.0	180	1	GCRT	glucagon precursor
6	161	100.0	180	1	GCHY	glucagon precursor
7	161	100.0	180	1	GCBO	glucagon precursor
8	161	100.0	180	2	A57294	glucagon precursor
9	149	92.5	151	1	GCCH	glucagon precursor
10	149	92.5	206	2	I51301	proglucagon - chic
11	129	80.1	101	1	GCFGB	glucagon precursor
12	126	78.3	30	2	B61125	glucagon-like pept
13	126	78.3	30	2	C61125	glucagon-like pept
14	126	78.3	122	1	GCAP2	glucagon 2 precurs
15	118	73.3	66	2	I51093	glucagon - chinook
16	118	73.3	178	2	I51058	glucagon I precurs
17	117	72.7	63	1	GCIDC	glucagon precursor
18	116	72.0	72	1	GCGXA	glucagon precursor
19	113	70.2	60	1	GCONC	glucagon precursor
20	113	70.2	178	2	I51057	glucagon II precur
21	111	68.9	30	2	S44473	glucagon-like pept
22	103	64.0	87	1	GCFIS	glucagon precursor
23	97	60.2	29	2	S07211	glucagon - marbled
24	96	59.6	31	2	S44472	glucagon G2 - Nort
25	96	59.6	124	1	GCAF	glucagon 1 precurs
26	95	59.0	29	1	GCDF	glucagon - smaller
27	94	58.4	31	2	S44471	glucagon G1 - Nort
28	93	57.8	29	1	GCEN	glucagon - elephan
29	90	55.9	29	1	GCOPV	glucagon - North A
30	90	55.9	29	2	A91740	glucagon - turkey
31	90	55.9	29	2	A91741	glucagon - rabbit
32	90	55.9	29	2	A91742	glucagon - Arabian
33	90	55.9	29	2	C39258	glucagon - common
34	90	55.9	69	1	GCDG69	glucagon-69 - dog
35	88	54.7	29	1	GCDK	glucagon - duck
36	88	54.7	29	1	A61583	glucagon - ostrich
37	88	54.7	29	1	GCTTS	glucagon - slider
38	88	54.7	29	2	C60840	glucagon I - Europ
39	87	54.0	29	1	GCCB	glucagon - Chinchi
40	87	54.0	39	1	EWGH4G	exendin-4 - Gila m
41	86	53.4	29	1	GCFLE	glucagon - Europea
42	86	53.4	29	2	A61135	glucagon - bigeye
43	85	52.8	39	1	EWGH3Z	exendin-3 - Mexica
44	83	51.6	29	2	S39018	glucagon - bowfin
45	79	49.1	36	1	GCFI	glucagon-36 - spot

ALIGNMENTS

RESULT 1
GCPG
glucagon precursor - pig (fragment)
N;Alternate names: glicentin; oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucag
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 17-Dec-1982 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: A01540; A60312; A91781; B32614; A28064
R;Thim, L.; Moody, A.J.
Regul. Pept. 2, 139-150, 1981
A;Title: The primary structure of porcine glicentin (proglucagon).
A;Reference number: A94233; MUID:81248172; PMID:6894800
A;Accession: A01540
A;Molecule type: protein
A;Residues: 1-69 <TH1>
R;Thim, L.; Moody, A.J.
Regul. Pept. Suppl. 2, S33, 1983
A;Title: Primary structure of a possible porcine proglucagon fragment.
A;Reference number: A60312
A;Accession: A60312
A;Molecule type: protein
A;Residues: 1-30 <TH2>
A;Note: this peptide is co-secreted with glucagon from the pancreas
R;Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
A;Title: The amino acid sequence of glucagon. V. Location of amide groups, acid deg
A;Reference number: A91781
A;Accession: A91781
A;Molecule type: protein
A;Residues: 33-61 <BRO>
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small int
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: B32614
A;Molecule type: protein
A;Residues: 78-107 <ORS>
R;Buhl, T.; Thim, L.; Kofod, H.; Orskov, C.; Harling, H.; Holst, J.J.
J. Biol. Chem. 263, 8621-8624, 1988
A;Title: Naturally occurring products of proglucagon 111-160 in the porcine and huma
A;Reference number: A28064; MUID:88243712; PMID:3379036
A;Accession: A28064
A;Molecule type: protein
A;Residues: 111-158 <BUH>
C;Comment: X's represent missing amino acids, mostly basic, that are predicted to e
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; i
F;1-69/Product: glucagon-69 #status experimental <G69>
F;1-30/Region: glicentin-related peptide #status experimental
F;33-69/Product: glucagon-37 #status predicted <G37>
F;33-61/Product: glucagon #status experimental <GCN>
F;78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

F;126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F;107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 161; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 78 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 108

RESULT 2
GCHU
glucagon precursor [validated] - human
N;Contains: glicentin; glicentin-related polypeptide (GRPP); glucagon; glucagon-like pep
ke peptide 1 (tGLP1)
C;Species: Homo sapiens (man)
C;Date: 24-Apr-1984 #sequence_revision 31-Mar-1993 #text_change 08-Dec-2000
C;Accession: A24377; A44197; A30875; A32614; A01541; S23309
R;White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986
A;Title: Structure of the human glucagon gene.
A;Reference number: A24377; MUID:86259053; PMID:3725587
A;Accession: A24377
A;Molecule type: DNA
A;Residues: 1-180 <WHI>
A;Cross-references: GB:X03991
R;Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
Nature 304, 368-371, 1983
A;Title: Exon duplication and divergence in the human preproglucagon gene.
A;Reference number: A44197; MUID:83271477; PMID:6877358
A;Accession: A44197
A;Molecule type: DNA
A;Residues: 1-179 <BEL>
A;Cross-references: GB:V01515; NID:g31777; PIDN:CAA24759.1; PID:g31778
R;Drucker, D.J.; Asa, S.
J. Biol. Chem. 263, 13475-13478, 1988
A;Title: Glucagon gene expression in vertebrate brain.
A;Reference number: A30875; MUID:88330860; PMID:2901414
A;Accession: A30875
A;Molecule type: mRNA
A;Residues: 1-180 <DRU>
A;Cross-references: GB:J04040; NID:g183269; PIDN:AAA52567.1; PID:g183270
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestin
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: A32614
A;Molecule type: protein
A;Residues: 98-127 <ORS>
R;Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972
A;Title: The amino acid sequence of human glucagon.
A;Reference number: A91373
A;Accession: A01541
A;Molecule type: protein
A;Residues: 53-81 <THO>
R;Tsugita, A.; Takamoto, K.; Kamo, M.; Iwadate, H.
Eur. J. Biochem. 206, 691-696, 1992
A;Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis
A;Reference number: S23188; MUID:92298996; PMID:1606956
A;Accession: S23309
A;Molecule type: protein
A;Residues: 53-81 <TSU>
C;Comment: In pancreatic alpha-cells, proglucagon is processed to glicentin-related poly
stinal L cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon-
dulin.
C;Genetics:
A;Gene: GDB:GCG
A;Cross-references: GDB:119265; OMIM:138030
A;Map position: 2q36-2q37
A;Introns: 31/2; 85/2; 131/2; 179/2

C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; int
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status experimental <PGC>
F;21-89/Product: glicentin #status experimental <GLN>
F;21-50/Product: glicentin-related polypeptide #status predicted <GRPP>
F;53-89/Product: oxyntomodulin #status experimental <OXN>
F;53-81/Product: glucagon #status experimental <GCN>
F;92-178/Product: major proglucagon fragment #status experimental <MPGF>
F;92-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followin

Query Match 100.0%; Score 161; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 3
GCGP
glucagon precursor - guinea pig
N;Alternate names: oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucag
C;Species: Cavia porcellus (guinea pig)
C;Date: 30-Sep-1987 #sequence_revision 31-Dec-1992 #text_change 16-Jun-2000
C;Accession: A24856; A23849; A60323
R;Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
FEBS Lett. 203, 25-30, 1986
A;Title: Mutations in the guinea pig preproglucagon gene are restricted to a specifi
A;Reference number: A24856; MUID:86248118; PMID:3755107
A;Accession: A24856
A;Molecule type: mRNA
A;Residues: 1-180 <SEI>
A;Cross-references: DDBJ:D00014; GB:N00014; NID:g220288; PIDN:BAA00010.1; PID:g22028
R;Huang, C.G.; Eng, J.; Pan, Y.C.E.; Hulmes, J.D.; Yalow, R.S.
Diabetes 35, 508-512, 1986
A;Title: Guinea pig glucagon differs from other mammalian glucagons.
A;Reference number: A23849; MUID:86165412; PMID:3956884
A;Accession: A23849
A;Molecule type: protein
A;Residues: 53-81 <HUA>
R;Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
Regul. Pept. 11, 309-320, 1985
A;Title: Primary structure of glucagon and a partial sequence of oxyntomodulin (gluc
A;Reference number: A60323; MUID:86017849; PMID:4048553
A;Accession: A60323
A;Molecule type: protein
A;Residues: 53-81 <CON>
A;Note: glucagon-37 was not completely sequenced
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pa
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followin

Query Match 100.0%; Score 161; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 4
GCRTDU
glucagon precursor - degu
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Octodon degus (degu)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: C36118
R;Nishi, M.; Steiner, D.F.
Mol. Endocrinol. 4, 1192-1198, 1990
A;Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and
A;Reference number: A36118; MUID:91155952; PMID:2293024
A;Accession: C36118
A;Molecule type: mRNA
A;Residues: 1-180 <NIS>
A;Cross-references: GB:M57688; NID:g202467; PIDN:AAA40588.1; PID:g202468
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 161; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 5
GCRT
glucagon precursor - rat
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Rattus norvegicus (Norway rat)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 26-Feb-1999
C;Accession: A22655; A25190; A44198
R;Heinrich, G.; Gros, P.; Habener, J.F.
J. Biol. Chem. 259, 14082-14087, 1984
A;Title: Glucagon gene sequence: four of six exons encode separate functional domains of
A;Reference number: A22655; MUID:85054853; PMID:6094539
A;Accession: A22655
A;Molecule type: DNA
A;Residues: 1-180 <HEI>
A;Cross-references: EMBL:K02809
A;Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5
R;Mojsov, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
J. Biol. Chem. 261, 11880-11889, 1986
A;Title: Preproglucagon gene expression in pancreas and intestine diversifies at the lev
A;Reference number: A25190; MUID:86304324; PMID:3528148
A;Accession: A25190
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-180 <MOJ>
R;Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
Endocrinology 115, 2176-2181, 1984
A;Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid s
A;Reference number: A44198; MUID:85051023; PMID:6548696
A;Accession: A44198
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <HE2>
A;Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812
C;Genetics:
A;Introns: 31/2; 85/2; 131/2; 179/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followir

Query Match 100.0%; Score 161; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 6
GCHY
glucagon precursor - golden hamster
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-l
C;Species: Mesocricetus auratus (golden hamster)
C;Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998
C;Accession: A01539
R;Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.
Nature 302, 716-718, 1983
A;Title: Hamster preproglucagon contains the sequence of glucagon and two related pe
A;Reference number: A01539; MUID:83167563; PMID:6835407
A;Accession: A01539
A;Molecule type: mRNA
A;Residues: 1-180 <BEL>
A;Cross-references: EMBL:J00059
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pa
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followi

Query Match 100.0%; Score 161; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 7
GCBO
glucagon precursor - bovine
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-
C;Species: Bos primigenius taurus (cattle)
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 20-Mar-1998
C;Accession: A93970; A92081; A01538
R;Lopez, L.C.; Frazier, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.
Proc. Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983
A;Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptid
A;Reference number: A93970; MUID:83299996; PMID:6577439
A;Accession: A93970
A;Molecule type: mRNA
A;Residues: 1-180 <LOP>
A;Cross-references: EMBL:K00107
R;Bromer, W.W.; Boucher, M.E.; Koffenberger Jr., J.E.
J. Biol. Chem. 246, 2822-2827, 1971
A;Title: Amino acid sequence of bovine glucagon.
A;Reference number: A92081; MUID:71166445; PMID:5102927
A;Accession: A92081
A;Molecule type: protein
A;Residues: 53-81 <BRO>
C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 161; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 8
A57294
glucagon precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 16-Jul-1999
C;Accession: A57294; S49903
R;Rothenberg, M.E.; Eilertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A;Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A;Reference number: A57294; MUID:95247722; PMID:7730317
A;Accession: A57294
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <ROT>
A;Cross-references: EMBL:Z46845; NID:g599880; PIDN:CAA86902.1; PID:g599881
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas

Query Match 100.0%; Score 161; DB 2; Length 180;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128

RESULT 9
GCCH
glucagon precursor - chicken
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Gallus gallus (chicken)
C;Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: S09992; A92189; A60836; A01542
R;Hasegawa, S.; Terazono, K.; Nata, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
FEBS Lett. 264, 117-120, 1990
A;Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken p
A;Reference number: S09992; MUID:90249492; PMID:2338135
A;Accession: S09992
A;Molecule type: mRNA
A;Residues: 1-151 <HAS>
A;Cross-references: EMBL:Y07539; NID:g63749; PIDN:CAA68827.1; PID:g63750
R;Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A;Title: Chicken glucagon. Isolation and amino acid sequence studies.
A;Reference number: A92189; MUID:76069271; PMID:1194290
A;Accession: A92189
A;Molecule type: protein
A;Residues: 55-83 <POL>
R;Huang, J.; Eng, J.; Yalow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A;Title: Chicken glucagon: sequence and potency in receptor assay.
A;Reference number: A60836; MUID:88113418; PMID:2828209
A;Accession: A60836
A;Molecule type: protein
A;Residues: 55-83 <HUA>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pat
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-151/Product: proglucagon #status predicted <PGC>
F;55-83/Product: glucagon #status experimental <GCN>
F;118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F;147/Modified site: amidated carboxyl end (Arg) (amide in mature form from followin

Query Match 92.5%; Score 149; DB 1; Length 151;
Best Local Similarity 87.1%; Pred. No. 6.3e-14;
Matches 27; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||:|||::||||||||||||||| |||
Db 118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGRG 148

RESULT 10
I51301
proglucagon - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51301
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcri
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51301
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-206 <IRW>
A;Cross-references: GB:S78477; NID:g999386; PIDN:AAB34506.1; PID:g999387
C;Superfamily: glucagon
C;Keywords: duplication

Query Match 92.5%; Score 149; DB 2; Length 206;
Best Local Similarity 87.1%; Pred. No. 8.8e-14;
Matches 27; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
||||||:|||::||||||||||||||| |||
Db 118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGRG 148

RESULT 11
GCFGB
glucagon precursor - bullfrog (fragments)
N;Alternate names: oxyntomodulin
N;Contains: glucagon; glucagon-36 (oxyntomodulin); glucagon-like peptide 1; glucagon-
C;Species: Rana catesbeiana (bullfrog)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: B28091; C28091; D28091
R;Pollock, H.G.; Hamilton, J.W.; Rouse, J.B.; Ebner, K.E.; Rawitch, A.B.
J. Biol. Chem. 263, 9746-9751, 1988
A;Title: Isolation of peptide hormones from the pancreas of the bullfrog (Rana catesb
A;Reference number: A92730; MUID:88257102; PMID:3260236
A;Accession: B28091
A;Molecule type: protein
A;Residues: 1-36 <PO2>
A;Accession: C28091
A;Molecule type: protein
A;Residues: 37-68 <POL>
A;Accession: D28091
A;Molecule type: protein
A;Residues: 69-101 <PO3>
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-36/Product: glucagon-36 (oxyntomodulin) #status experimental <G36>
F;1-29/Product: glucagon #status predicted <GCN>
F;37-67/Product: glucagon-like peptide 1 #status experimental <GL1>
F;69-101/Product: glucagon-like peptide 2 #status experimental <GL2>

```
  Query Match            80.1%;  Score 129;  DB 1;  Length 101;
  Best Local Similarity   76.7%;  Pred. No. 3e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:|||||:|||| :|||||: ||:|||
Db         37 HADGTFTSDMSSYLEEKAAKEFVDWLIKGR 66


RESULT 12
B61125
glucagon-like peptide - American eel
C;Species: Anguilla rostrata (American eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: B61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: B61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status predicted

  Query Match            78.3%;  Score 126;  DB 2;  Length 30;
  Best Local Similarity   76.7%;  Pred. No. 2.2e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||||||: ||||||::||  ||
Db          1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 13
C61125
glucagon-like peptide - European eel
C;Species: Anguilla anguilla (European eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: C61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: C61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status experimental

  Query Match            78.3%;  Score 126;  DB 2;  Length 30;
  Best Local Similarity   76.7%;  Pred. No. 2.2e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||||||: ||||||::||  ||
Db          1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 14
GCAF2
glucagon 2 precursor - American goosefish
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Lophius americanus (American goosefish)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Jul-2000
C;Accession: A05150
R;Lund, P.K.; Goodman, R.H.; Montminy, M.R.; Dee, P.C.; Habener, J.F.
J. Biol. Chem. 258, 3280-3284, 1983
A;Title: Anglerfish islet pre-proglucagon II. Nucleotide and corresponding amino acid se
A;Reference number: A05150; MUID:83135785; PMID:6338015
A;Accession: A05150
A;Molecule type: mRNA
A;Residues: 1-122 <LUN>
A;Cross-references: GB:J00933; NID:g64021; PIDN:CAA23905.1; PID:g64022
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-21/Domain: signal sequence #status predicted <SIG>
F;22-122/Product: proglucagon 2 #status predicted <PGC2>
F;52-80/Product: glucagon #status predicted <GCN>
F;89-119/Product: glucagon-like peptide 1 #status predicted <GL1>

  Query Match            78.3%;  Score 126;  DB 1;  Length 122;
  Best Local Similarity   71.0%;  Pred. No. 1e-10;
  Matches   22;  Conservative    6;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              ||:||:|||||||: ||||:|::||  |||
Db         89 HADGTYTSDVSSYLQDQAAKDFVSWLKAGRG 119


RESULT 15
I51093
glucagon - chinook salmon (fragment)
C;Species: Oncorhynchus tschawytscha (chinook salmon)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51093
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcri
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51093
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-66 <IRW>
A;Cross-references: EMBL:U19920; NID:g736366; PIDN:AAC59670.1; PID:g736367
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match            73.3%;  Score 118;  DB 2;  Length 66;
  Best Local Similarity   66.7%;  Pred. No. 7.2e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:|||||:||: ||||:|::||  ||
Db         33 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 62


Search completed: October 15, 2003, 10:56:43
Job time : 25.4098 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:35:56 ; Search time 13.7213 Seconds
(without alignments)
106.246 Million cell updates/sec

Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_41:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	158	1	GLUC_PIG	P01274 sus scrofa
2	161	100.0	180	1	GLUC_BOVIN	P01272 bos taurus
3	161	100.0	180	1	GLUC_CAVPO	P05110 cavia porce
4	161	100.0	180	1	GLUC_HUMAN	P01275 homo sapien
5	161	100.0	180	1	GLUC_MESAU	P01273 mesocricetu
6	161	100.0	180	1	GLUC_MOUSE	P55095 mus musculu
7	161	100.0	180	1	GLUC_OCTDE	P22890 octodon deg
8	161	100.0	180	1	GLUC_RAT	P06883 rattus norv
9	149	92.5	206	1	GLUC_CHICK	P01277 gallus gall
10	143	88.8	204	1	GLUC_HELSU	O12956 heloderma s
11	129	80.1	103	1	GLUC_RANCA	P15438 rana catesb
12	126	78.3	30	1	GLUM_ANGAN	P41521 anguilla an
13	126	78.3	122	1	GLU2_LOPAM	P04092 lophius ame
14	125	77.6	266	1	GLU1_XENLA	O42143 xenopus lae
15	120	74.5	219	1	GLU2_XENLA	O42144 xenopus lae
16	116.5	72.4	33	1	GLU2_ORENI	P81027 oreochromis
17	116	72.0	71	1	GLUC_ICTPU	P04093 ictalurus p
18	116	72.0	78	1	GLUC_LEPSP	P09566 lepisosteus
19	114	70.8	71	1	GLUC_PIAME	P81880 piaractus m
20	113	70.2	68	1	GLUC_ONCKI	P07449 oncorhynchu
21	110	68.3	121	1	GLUC_CARAU	P79695 carassius a
22	103	64.0	96	1	GLUC_MYOSC	P09686 myoxocephal
23	102	63.4	160	1	GLU1_PETMA	Q9pur1 petromyzon
24	97	60.2	29	1	GLUC_TORMA	P09567 torpedo mar
25	96	59.6	124	1	GLU1_LOPAM	P01278 lophius ame
26	95	59.0	62	1	GLUC_SCYCA	P09687 scyliorhinu
27	93	57.8	29	1	GLUC_CALMI	P13189 callorhynch
28	90	55.9	29	1	GLUC_DIDMA	P18108 didelphis m
29	90	55.9	29	1	GLUC_LAMFL	Q9prq9 lampetra fl
30	90	55.9	29	1	GLUC_RABIT	P25449 oryctolagus
31	90	55.9	36	1	GLU1_ORENI	P81026 oreochromis
32	90	55.9	69	1	GLUC_CANFA	P29794 canis famil
33	88	54.7	29	1	GLUC_ANAPL	P01276 anas platyr
34	87	54.0	29	1	GLUC_CHIBR	P31297 chinchilla
35	87	54.0	87	1	EXE4_HELSU	P26349 heloderma s
36	86	53.4	29	1	GLUC_PLAFE	P23062 platichthys
37	86	53.4	120	1	GLU2_PETMA	Q9pur0 petromyzon
38	85	52.8	39	1	EXE3_HELHO	P20394 heloderma h
39	83	51.6	75	1	GLUC_AMICA	P33528 amia calva
40	79	49.1	36	1	GLUC_HYDCO	P09682 hydrolagus
41	67	41.6	144	1	GIP_MOUSE	P48756 mus musculu
42	64	39.8	42	1	GIP_BOVIN	P09680 bos taurus
43	64	39.8	42	1	GIP_PIG	P01281 sus scrofa
44	64	39.8	144	1	GIP_RAT	Q06145 rattus norv
45	63	39.1	153	1	GIP_HUMAN	P09681 homo sapien

ALIGNMENTS

RESULT 1
GLUC_PIG
ID GLUC_PIG STANDARD; PRT; 158 AA.
AC P01274;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-NOV-1990 (Rel. 16, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Glucagon precursor [Contains: Glicentin; Glicentin-related polypeptide
DE (GRPP); Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like
DE peptide 2 (GLP2)] (Fragment).
GN GCG.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE OF 1-69.
RX MEDLINE=81248172; PubMed=6894800;
RA Thim L., Moody A.J.;
RT "The primary structure of porcine glicentin (proglucagon).";
RL Regul. Pept. 2:139-150(1981).
RN [2]
RP SEQUENCE OF 1-69.
RX MEDLINE=82221776; PubMed=7045833;
RA Thim L., Moody A.J.;
RT "The amino acid sequence of porcine glicentin.";
RL Peptides 2 Suppl. 2:37-39(1981).
RN [3]
RP SEQUENCE OF 33-61.
RA Bromer W.W., Sinn L.G., Behrens O.K.;
RT "The amino acid sequence of glucagon. V. Location of amide groups,
RT acid degradation studies and summary of sequential evidence.";
RL J. Am. Chem. Soc. 79:2807-2810(1957).
RN [4]
RP SEQUENCE OF 78-107.
RX MEDLINE=89327238; PubMed=2753890;
RA Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT "Complete sequences of glucagon-like peptide-1 from human and pig
RT small intestine.";
RL J. Biol. Chem. 264:12826-12829(1989).
RN [5]
RP SEQUENCE OF 111-158.
RX MEDLINE=88243712; PubMed=3379036;
RA Buhl T., Thim L., Kofod H., Orskov C., Harling H., Holst J.J.;
RT "Naturally occurring products of proglucagon 111-160 in the porcine
RT and human small intestine.";
RL J. Biol. Chem. 263:8621-8624(1988).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE=76051297; PubMed=171582;
RA Sasaki K., Dockerill S., Adamiak D.A., Tickle I.J., Blundell T.L.;
RT "X-ray analysis of glucagon and its relationship to receptor
RT binding.";
RL Nature 257:751-757(1975).
CC -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.

```
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       HUMAN SEQUENCE.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PDB; 1GCN; 30-SEP-83.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues;
KW   3D-structure.
FT   NON_TER       1      1
FT   PEPTIDE       1     69       GLICENTIN.
FT   PEPTIDE       1     30       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      33     61       GLUCAGON.
FT   PEPTIDE      78    107       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     126    158       GLUCAGON-LIKE PEPTIDE 2.
FT   HELIX        39     42
FT   TURN         43     45
FT   HELIX        46     55
FT   TURN         56     57
SQ   SEQUENCE   158 AA;  18212 MW;  28C6FCF257F333B2 CRC64;

  Query Match         100.0%;  Score 161;  DB 1;  Length 158;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         78 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 108


RESULT 2
GLUC_BOVIN
ID   GLUC_BOVIN     STANDARD;      PRT;   180 AA.
AC   P01272;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83299996; PubMed=6577439;
RA   Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;
RT   "Mammalian pancreatic preproglucagon contains three glucagon-related
RT   peptides.";
RL   Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=71166445; PubMed=5102927;
RA   Bromer W.W., Boucher M.E., Koffenberger J.E. Jr.;
RT   "Amino acid sequence of bovine glucagon.";
RL   J. Biol. Chem. 246:2822-2827(1971).
RN   [3]
RP   STRUCTURE BY NMR OF 53-81.
RX   MEDLINE=71166445; PubMed=6631957;
RA   Braun W., Wider G., Lee K.H., Wuthrich K.;
RT   "Conformation of glucagon in a lipid-water interphase by 1H nuclear
RT   magnetic resonance.";
RL   J. Mol. Biol. 169:921-948(1983).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K00107; AAA30538.1; -.
DR   PDB; 1KX6; 13-FEB-02.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   3D-structure.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP       84     89
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    142
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
FT   TURN         60     64
FT   TURN         74     74
FT   HELIX        75     78
SQ   SEQUENCE   180 AA;  20944 MW;  8D9B4FF05B9F15FF CRC64;

  Query Match         100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 3
GLUC_CAVPO
ID   GLUC_CAVPO     STANDARD;      PRT;   180 AA.
AC   P05110;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-37 (Oxyntomodulin); Glucagon-like peptide 1 (GLP1);
DE   Glucagon-like peptide 2 (GLP2)].
GN   GCG.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86248118; PubMed=3755107;
RA   Seino S., Welsh M., Bell G.I., Chan S.J., Steiner D.F.;
RT   "Mutations in the guinea pig preproglucagon gene are restricted to a
RT   specific portion of the prohormone sequence.";
RL   FEBS Lett. 203:25-30(1986).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=86165412; PubMed=3956884;
RA   Huang C.G., Eng J., Pan Y.-C.E., Hulmes J.D., Yalow R.S.;
RT   "Guinea pig glucagon differs from other mammalian glucagons.";
```

```
RL   Diabetes 35:508-512(1986).
RN   [3]
RP   PARTIAL SEQUENCE OF 53-89.
RX   MEDLINE=86017849; PubMed=4048553;
RA   Conlon J.M., Hansen H.F., Schwartz T.W.;
RT   "Primary structure of glucagon and a partial sequence of
RT   oxyntomodulin (glucagon-37) from the guinea pig.";
RL   Regul. Pept. 11:309-320(1985).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; D00014; BAA00010.1; -.
DR   PIR; A24856; GCGP.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL      1     20
FT   PEPTIDE     21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53    81       GLUCAGON.
FT   PEPTIDE     53    89       GLUCAGON-37.
FT   PEPTIDE     92    128      GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131   143
FT   PEPTIDE     146   178      GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20972 MW;  702FB181161D2776 CRC64;

  Query Match           100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 4
GLUC_HUMAN
ID   GLUC_HUMAN     STANDARD;      PRT;   180 AA.
AC   P01275;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-SEP-2003 (Rel. 42, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=88330860; PubMed=2901414;
RA   Drucker D.J., Asa S.;
RT   "Glucagon gene expression in vertebrate brain.";
RL   J. Biol. Chem. 263:13475-13478(1988).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86259053; PubMed=3725587;
RA   White J.W., Saunders G.F.;
RT   "Structure of the human glucagon gene.";
RL   Nucleic Acids Res. 14:4719-4730(1986).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=83271477; PubMed=6877358;
RA   Bell G.I., Sanchez-Pescador R., Laybourn P.J., Najarian R.C.;
RT   "Exon duplication and divergence in the human preproglucagon gene.";
RL   Nature 304:368-371(1983).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreas;
RX   MEDLINE=22388257; PubMed=12477932;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA   Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA   Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length
RT   human and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN   [5]
RP   SEQUENCE OF 53-81.
RA   Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
RT   "The amino acid sequence of human glucagon.";
RL   FEBS Lett. 21:315-319(1972).
RN   [6]
RP   SEQUENCE OF 98-127.
RX   MEDLINE=89327238; PubMed=2753890;
RA   Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT   "Complete sequences of glucagon-like peptide-1 from human and pig
RT   small intestine.";
RL   J. Biol. Chem. 264:12826-12829(1989).
RN   [7]
RP   X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
RX   MEDLINE=98334683; PubMed=9667960;
RA   Sturm N.S., Lin Y., Burley S.K., Krstenansky J.L., Ahn J.M.,
RA   Azizeh B.Y., Trivedi D., Hruby V.J.;
RT   "Structure-function studies on positions 17, 18, and 21 replacement
RT   analogues of glucagon: the importance of charged residues and salt
RT   bridges in glucagon biological activity.";
RL   J. Med. Chem. 41:2693-2700(1998).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- PHARMACEUTICAL: Available under the names Glucagon (Eli Lilly) and
CC       GlucaGen or Glucagon Novo Nordisk (Novo Nordisk). Used to treat
CC       severe hypoglycemia in insulin-dependent diabetics.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   -!- DATABASE: NAME=Glucagon at Eli Lilly;
CC       NOTE=Clinical information on Eli Lilly glucagon products;
CC       WWW="http://www.lillyDiabetes.com/Products/PatientInfo.cfm".
CC   ---------------------------------------------------------------------
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CC   use by non-profit institutions as long as its content is in no way
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------------
DR   EMBL; J04040; AAA52567.1; -.
DR   EMBL; X03991; CAA27627.1; -.
DR   EMBL; V01515; CAA24759.1; -.
DR   EMBL; BC005278; AAH05278.1; -.
DR   PIR; A24377; GCHU.
DR   PDB; 1BH0; 18-NOV-98.
DR   PDB; 1D0R; 23-OCT-02.
DR   Genew; HGNC:4191; GCG.
DR   MIM; 138030; -.
DR   MIM; 231530; -.
DR   GO; GO:0005625; C:soluble fraction; TAS.
DR   GO; GO:0008283; P:cell proliferation; TAS.
DR   GO; GO:0007631; P:feeding behavior; TAS.
DR   GO; GO:0007186; P:G-protein coupled receptor protein signalin. . .; TAS.
DR   GO; GO:0007165; P:signal transduction; TAS.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Pharmaceutical; 3D-structure; Polymorphism.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP       84     96
FT   PEPTIDE      98    127       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    143
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
FT   VARIANT     115    115       A -> V (IN dbSNP:5650).
FT                                /FTId=VAR_014596.
FT   CONFLICT     82     82       K -> N (IN REF. 3).
FT   TURN         59     62
FT   HELIX        63     77
FT   TURN         78     79
SQ   SEQUENCE   180 AA;  20909 MW;  7A99EEC629B2862C CRC64;

  Query Match             100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 5
GLUC_MESAU
ID   GLUC_MESAU     STANDARD;      PRT;   180 AA.
AC   P01273;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83167563; PubMed=6835407;
RA   Bell G.I., Santerre R.F., Mullenbach G.T.;
RT   "Hamster preproglucagon contains the sequence of glucagon and two
RT   related peptides.";
RL   Nature 302:716-718(1983).
RN   [2]
RP   REVISIONS TO 12-15.
RA   Bell G.I.;
RL   Submitted (XXX-1985) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------------
DR   EMBL; J00059; AAA37074.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP       84     89
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    143
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20954 MW;  02791B49D7AADD4B CRC64;

  Query Match             100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 6
GLUC_MOUSE
ID   GLUC_MOUSE     STANDARD;      PRT;   180 AA.
AC   P55095;
DT   01-OCT-1996 (Rel. 34, Created)
DT   01-OCT-1996 (Rel. 34, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreatic islets;
RX   MEDLINE=95247722; PubMed=7730317;
RA   Rothenberg M.E., Eilertson C.D., Klein K., Zhou Y., Linberg I.,
RA   McDonald J.K., Mackin R.B., Noe B.D.;
RT   "Processing of mouse proglucagon by recombinant prohormone convertase
RT   1 and immunopurified prohormone convertase 2 in vitro.";
RL   J. Biol. Chem. 270:10136-10146(1995).
```

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RN   [2]
RP   SEQUENCE FROM N.A.
RA   Shamsadin R., Knepel W.;
RT   "Mouse glucagon full length cDNA.";
RL   Submitted (JUN-2000) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Z46845; CAA86902.1; -.
DR   EMBL; AF276754; AAK96898.1; -.
DR   PIR; A57294; A57294.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:95674; Gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53    81       GLUCAGON.
FT   PROPEP       84    89
FT   PEPTIDE      92    128      GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    143
FT   PEPTIDE     146    178      GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20906 MW;  595AA6DD9A589950 CRC64;

  Query Match             100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 7
GLUC_OCTDE
ID   GLUC_OCTDE     STANDARD;      PRT;   180 AA.
AC   P22890;
DT   01-AUG-1991 (Rel. 19, Created)
DT   01-AUG-1991 (Rel. 19, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Octodon degus (Degu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Octodontidae; Octodon.
OX   NCBI_TaxID=10160;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91155952; PubMed=2293024;
RA   Nishi M., Steiner D.F.;
RT   "Cloning of complementary DNAs encoding islet amyloid polypeptide,
RT   insulin, and glucagon precursors from a New World rodent, the degu,
RT   Octodon degus.";
RL   Mol. Endocrinol. 4:1192-1198(1990).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; M57688; AAA40588.1; -.
DR   PIR; C36118; GCRTDU.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL       1     20
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53    81       GLUCAGON.
FT   PROPEP       84    89
FT   PEPTIDE      92    127      GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    142
FT   PEPTIDE     146    178      GLUCAGON-LIKE PEPTIDE 2.
FT   MOD_RES     127    127      AMIDATION (G-128 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   180 AA;  21165 MW;  6E8836160A9A3051 CRC64;

  Query Match             100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 8
GLUC_RAT
ID   GLUC_RAT       STANDARD;      PRT;   180 AA.
AC   P06883;
DT   01-JAN-1988 (Rel. 06, Created)
DT   01-JAN-1988 (Rel. 06, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85054853; PubMed=6094539;
RA   Heinrich G., Gros P., Habener J.F.;
RT   "Glucagon gene sequence. Four of six exons encode separate functional
RT   domains of rat pre-proglucagon.";
RL   J. Biol. Chem. 259:14082-14087(1984).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85051023; PubMed=6548696;
RA   Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
```

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RT   "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
RT   amino acid sequences of the rat pancreatic complementary
RT   deoxyribonucleic acid.";
RL   Endocrinology 115:2176-2181(1984).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86304324; PubMed=3528148;
RA   Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
RA   Habener J.F.;
RT   "Preproglucagon gene expression in pancreas and intestine diversifies
RT   at the level of post-translational processing.";
RL   J. Biol. Chem. 261:11880-11889(1986).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; K02813; AAA41235.1; -.
DR   EMBL; K02809; AAA41235.1; JOINED.
DR   EMBL; K02810; AAA41235.1; JOINED.
DR   EMBL; K02811; AAA41235.1; JOINED.
DR   EMBL; K02812; AAA41235.1; JOINED.
DR   PIR; A22655; GCRT.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PROPEP      84     89
FT   PEPTIDE     92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP     131    143
FT   PEPTIDE    146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20846 MW;  76931409D03C7978 CRC64;

  Query Match           100.0%;  Score 161;  DB 1;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 9
GLUC_CHICK
ID   GLUC_CHICK     STANDARD;      PRT;   206 AA.
AC   P01277; Q91410;
DT   21-JUL-1986 (Rel. 01, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
OS   Gallus gallus (Chicken), and
OS   Meleagris gallopavo (Common turkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031, 9103;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORM PANCREATIC).
RC   SPECIES=Chicken; TISSUE=Pancreas;
RX   MEDLINE=90249492; PubMed=2338135;
RA   Hasegawa S., Terazono K., Nata K., Takada T., Yamamoto H.,
RA   Okamoto H.;
RT   "Nucleotide sequence determination of chicken glucagon precursor
RT   cDNA. Chicken preproglucagon does not contain glucagon-like peptide
RT   II.";
RL   FEBS Lett. 264:117-120(1990).
RN   [2]
RP   SEQUENCE FROM N.A. (ISOFORM INTESTINAL).
RC   SPECIES=Chicken; TISSUE=Intestinal mucosa;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
RN   [3]
RP   SEQUENCE OF 55-83.
RC   SPECIES=Chicken;
RX   MEDLINE=76069271; PubMed=1194290;
RA   Pollock H.G., Kimmel J.R.;
RT   "Chicken glucagon. Isolation and amino acid sequence studies.";
RL   J. Biol. Chem. 250:9377-9380(1975).
RN   [4]
RP   COMPOSITION, AND SEQUENCE OF 55-83.
RC   SPECIES=M.gallopavo;
RX   MEDLINE=73074118; PubMed=4645932;
RA   Markussen J., Frandsen E.K., Heding L.G., Sundby F.;
RT   "Turkey glucagon: crystallization, amino acid composition and
RT   immunology.";
RL   Horm. Metab. Res. 4:360-363(1972).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=Intestinal;
CC         IsoId=P01277-1; Sequence=Displayed;
CC       Name=Pancreatic;
CC         IsoId=P01277-2; Sequence=VSP_001753, VSP_001754;
CC         Note=Has been shown to exist only in chicken so far;
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: THE COMPOSITION OF TURKEY GLUCAGON APPEARS TO BE
CC       IDENTICAL WITH CHICKEN.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; Y07539; CAA68827.1; -.
DR   EMBL; S78477; AAB34506.1; -.
DR   PIR; I51301; I51301.
DR   PIR; S09992; GCCH.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL       1     22
FT   PEPTIDE     23     52       GLICENTIN-RELATED POLYPEPTIDE.
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FT   PEPTIDE      55     83       GLUCAGON.
FT   PROPEP       86    116
FT   PEPTIDE     118    147       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      151    163
FT   PEPTIDE     166    198       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP      199    206
FT   MOD_RES     147    147       AMIDATION (G-148 PROVIDE AMIDE GROUP).
FT   VARSPLIC    151    151       D -> E (in isoform Pancreatic).
FT                                /FTId=VSP_001753.
FT   VARSPLIC    152    206       Missing (in isoform Pancreatic).
FT                                /FTId=VSP_001754.
SQ   SEQUENCE   206 AA;  23875 MW;  AB299E1B02FC6AA4 CRC64;

  Query Match           92.5%;  Score 149;  DB 1;  Length 206;
  Best Local Similarity  87.1%;  Pred. No. 7.2e-14;
  Matches   27;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||:|||::||||||||||||||||| |||
Db        118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGRG 148


RESULT 10
GLUC_HELSU
ID   GLUC_HELSU     STANDARD;      PRT;   204 AA.
AC   O12956; O12955;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP-1); Glucagon-like peptide 2
DE   (GLP-2)].
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORMS LPI AND LPII), AND TISSUE SPECIFICITY.
RC   TISSUE=Intestine, and Pancreas;
RX   MEDLINE=97172477; PubMed=9020121;
RA   Chen Y.E., Drucker D.J.;
RT   "Tissue-specific expression of unique mRNAs that encode proglucagon-
RT   derived peptides or exendin 4 in the lizard.";
RL   J. Biol. Chem. 272:4108-4115(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=LPII;
CC         IsoId=O12956-1; Sequence=Displayed;
CC       Name=LPI;
CC         IsoId=O12956-2; Sequence=VSP_001756, VSP_001757;
CC   -!- TISSUE SPECIFICITY: Isoform LPII is expressed in both pancreas and
CC       intestine. Expression of isoform LPI is restricted to the
CC       pancreas. Neither isoform is detected in salivary glands.
CC   -!- INDUCTION: Produced in the a cells of the islets of langerhans in
CC       response to a drop in blood sugar concentration.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; U77612; AAB51129.1; -.
DR   EMBL; U77611; AAB51128.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PROPEP      84    114
FT   PEPTIDE    116    145       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP     149    161
FT   PEPTIDE    164    196       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP     197    204
FT   MOD_RES    145    145       AMIDATION (G-145 PROVIDE AMIDE GROUP).
FT   VARSPLIC   149    149       D -> E (in isoform LPI).
FT                               /FTId=VSP_001756.
FT   VARSPLIC   150    204       Missing (in isoform LPI).
FT                               /FTId=VSP_001757.
SQ   SEQUENCE   204 AA;  23553 MW;  B132E3FE46873E72 CRC64;

  Query Match           88.8%;  Score 143;  DB 1;  Length 204;
  Best Local Similarity  83.9%;  Pred. No. 5e-13;
  Matches   26;  Conservative    3;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              ||:| :|||:||||||||||||||||| |||
Db        116 HADGRYTSDISSYLEGQAAKEFIAWLVNGRG 146


RESULT 11
GLUC_RANCA
ID   GLUC_RANCA     STANDARD;      PRT;   103 AA.
AC   P15438; P15439; P15440;
DT   01-APR-1990 (Rel. 14, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Glucagon precursor (Fragments).
OS   Rana catesbeiana (Bull frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae; Rana.
OX   NCBI_TaxID=8400;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=88257102; PubMed=3260236;
RA   Pollock H.G., Hamilton J.W., Rouse J.B., Ebner K.E., Rawitch A.B.;
RT   "Isolation of peptide hormones from the pancreas of the bullfrog
RT   (Rana catesbeiana). Amino acid sequences of pancreatic polypeptide,
RT   oxyntomodulin, and two glucagon-like peptides.";
RL   J. Biol. Chem. 263:9746-9751(1988).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       OTHER SPECIES SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone.
FT   PEPTIDE      1     29       GLUCAGON.
FT   PEPTIDE      1     36       GLUCAGON-36 (OXYNTOMODULIN).
FT   PEPTIDE     39     70       GLUCAGON-LIKE PEPTIDE 1.
FT   NON_CONS    70     71
FT   PEPTIDE     71    103       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   103 AA;  11719 MW;  316287B7BAE1C8F7 CRC64;

  Query Match           80.1%;  Score 129;  DB 1;  Length 103;
  Best Local Similarity  76.7%;  Pred. No. 2.4e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;
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Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||||||:||||| :||||||: ||:|||
Db         39 HADGTFTSDMSSYLEEKAAKEFVDWLIKGR 68


RESULT 12
GLUM_ANGAN
ID   GLUM_ANGAN     STANDARD;      PRT;    30 AA.
AC   P41521;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   15-SEP-2003 (Rel. 42, Last annotation update)
DE   Glucagon-like peptide (GLP).
OS   Anguilla anguilla (European freshwater eel), and
OS   Anguilla rostrata (American eel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Anguilliformes; Anguillidae;
OC   Anguilla.
OX   NCBI_TaxID=7936, 7938;
RN   [1]
RP   SEQUENCE.
RC   SPECIES=A.anguilla, and A.rostrata;
RC   TISSUE=Pancreas;
RX   MEDLINE=91340068; PubMed=1874385;
RA   Conlon J.M., Andrews P.C., Thim L., Moon T.W.;
RT   "The primary structure of glucagon-like peptide but not insulin has
RT   been conserved between the American eel, Anguilla rostrata and the
RT   European eel, Anguilla anguilla.";
RL   Gen. Comp. Endocrinol. 82:23-32(1991).
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; B61125; B61125.
DR   PIR; C61125; C61125.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation.
FT   MOD_RES      30     30       AMIDATION.
SQ   SEQUENCE   30 AA;  3376 MW;  592DA5EABD6E49D0 CRC64;

  Query Match             78.3%;  Score 126;  DB 1;  Length 30;
  Best Local Similarity   76.7%;  Pred. No. 1.8e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:||||||||: ||||||::||  ||
Db          1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 13
GLU2_LOPAM
ID   GLU2_LOPAM     STANDARD;      PRT;   122 AA.
AC   P04092;
DT   01-NOV-1986 (Rel. 03, Created)
DT   01-NOV-1986 (Rel. 03, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon II precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon II; Glucagon-like peptide II].
OS   Lophius americanus (American goosefish) (Anglerfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Paracanthopterygii; Lophiiformes; Lophiidae; Lophius.
OX   NCBI_TaxID=8073;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83135785; PubMed=6338015;
RA   Lund P.K., Goodman R.H., Montminy M.R., Dee P.C., Habener J.F.;
RT   "Anglerfish islet pre-proglucagon II. Nucleotide and corresponding
RT   amino acid sequence of the cDNA.";
RL   J. Biol. Chem. 258:3280-3284(1983).
RN   [2]
RP   PROCESSING.
RX   MEDLINE=86286913; PubMed=3526301;
RA   Noe B.D., Andrews P.C.;
RT   "Specific glucagon-related peptides isolated from anglerfish islets
RT   are metabolic cleavage products of (pre)proglucagon-II.";
RL   Peptides 7:331-339(1986).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ----------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ----------------------------------------------------------------------
DR   EMBL; V00532; CAA23905.1; -.
DR   PIR; A05150; GCAF2.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     21
FT   PEPTIDE      22    49       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      52    80       GLUCAGON II.
FT   PROPEP       83    86
FT   PEPTIDE      89    119      GLUCAGON-LIKE PEPTIDE II.
SQ   SEQUENCE   122 AA;  14171 MW;  5140AC47EF915519 CRC64;

  Query Match             78.3%;  Score 126;  DB 1;  Length 122;
  Best Local Similarity   71.0%;  Pred. No. 7.5e-11;
  Matches   22;  Conservative    6;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              ||:||:|||||||||: ||||:|::||  |||
Db         89 HADGTYTSDVSSYLQDQAAKDFVSWLKAGRG 119


RESULT 14
GLU1_XENLA
ID   GLU1_XENLA     STANDARD;      PRT;   266 AA.
AC   042143;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon I precursor [Contains: Glucagon; Glucagon-like peptide 1A
DE   (GLP-1A); Glucagon-like peptide 1B (GLP-1B); Glucagon-like peptide 1C
DE   (GLP-1C); Glucagon-like peptide 2 (GLP-2)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=Pancreas;
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
```

```
CC       Name=1;
CC         IsoId=042143-1; Sequence=Displayed;
CC       Name=2;
CC         IsoId=042143-2; Sequence=VSP_001755;
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
CC   between the Swiss Institute of Bioinformatics and the EMBL outstation -
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF004432; AAB65660.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 5.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 5.
DR   PROSITE; PS00260; GLUCAGON; 5.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family; Alternative splicing.
FT   SIGNAL       1     20       POTENTIAL.
FT   PROPEP      21     50
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP      84     95
FT   PEPTIDE      97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PROPEP     136    140
FT   PEPTIDE     142    172       GLUCAGON-LIKE PEPTIDE 1B.
FT   PROPEP     175    178
FT   PEPTIDE     180    210       GLUCAGON-LIKE PEPTIDE 1C.
FT   PROPEP     213    224
FT   PEPTIDE     227    259       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP     261    266
FT   VARSPLIC    214    261       Missing (in isoform 2).
FT                                /FTId=VSP_001755.
SQ   SEQUENCE   266 AA;  30951 MW;  544F7BBC20AF872C CRC64;

  Query Match            77.6%;  Score 125;  DB 1;  Length 266;
  Best Local Similarity   70.0%;  Pred. No. 2.3e-10;
  Matches   21;  Conservative    7;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||:|:::|||  :|||||: ||:|||
Db        180 HAEGTFTNDMTNYLEEKAAKEFVGWLIKGR 209


RESULT 15
GLU2_XENLA
ID   GLU2_XENLA     STANDARD;      PRT;   219 AA.
AC   042144;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon II precursor [Contains: Glucagon; Glucagon-like peptide 1A
DE   (GLP-1A); Glucagon-like peptide 1B (GLP-1B); Glucagon-like peptide 1C
DE   (GLP-1C)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreas;
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF004433; AAB65661.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL       1     20       POTENTIAL.
FT   PROPEP      21     50
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP      84     95
FT   PEPTIDE      97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PROPEP     136    140
FT   PEPTIDE     142    172       GLUCAGON-LIKE PEPTIDE 1B.
FT   PROPEP     175    178
FT   PEPTIDE     180    210       GLUCAGON-LIKE PEPTIDE 1C.
FT   PROPEP     213    219
SQ   SEQUENCE   219 AA;  25271 MW;  ACC699233C362CE0 CRC64;

  Query Match            74.5%;  Score 120;  DB 1;  Length 219;
  Best Local Similarity   66.7%;  Pred. No. 9.6e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||:|:::|||  :|||||: ||: ||
Db        180 HAEGTFTNDMTNYLEEKAAKEFVGWLINGR 209


Search completed: October 15, 2003, 10:53:38
Job time : 13.7213 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:48:32 ; Search time 60.9836 Seconds
(without alignments)
131.177 Million cell updates/sec

Title: US-09-719-410-3
Perfect score: 161
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_23:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	161	100.0	176	6	Q8MJ25	Q8mj25 ovis aries
2	161	100.0	180	6	Q95LG0	Q95lg0 canis famil
3	129	80.1	220	13	Q8UWL9	Q8uwl9 hoplobatrac
4	118	73.3	72	13	Q91409	Q91409 oncorhynchu
5	118	73.3	178	13	Q91971	Q91971 oncorhynchu
6	113	70.2	178	13	Q91189	Q91189 oncorhynchu
7	103	64.0	121	13	Q9DDE6	Q9dde6 brachydanio
8	90	55.9	96	13	Q9DG43	Q9dg43 ambloplites
9	67	41.6	130	11	Q9CVF1	Q9cvf1 mus musculu
10	67	41.6	144	11	Q9D887	Q9d887 mus musculu
11	60	37.3	170	6	Q8MI77	Q8mi77 bos taurus
12	59	36.6	171	11	Q9D2Z7	Q9d2z7 mus musculu
13	59	36.6	389	2	Q93IH2	Q93ih2 wolinella s
14	54	33.5	172	13	Q9DE29	Q9de29 brachydanio
15	53.5	33.2	175	13	Q90XZ4	Q90xz4 ictalurus p
16	53	32.9	170	11	Q8BJT8	Q8bjt8 mus musculu
17	52.5	32.6	224	16	Q8XW49	Q8xw49 ralstonia s
18	52.5	32.6	427	17	Q8TLY0	Q8tly0 methanosarc
19	52	32.3	38	5	Q8IU39	Q8iu39 dugesia jap
20	52	32.3	38	5	Q8IU38	Q8iu38 hydra magni
21	52	32.3	38	5	Q8IU37	Q8iu37 sepioteuthi
22	52	32.3	38	5	Q8IU36	Q8iu36 periplaneta
23	52	32.3	38	13	Q8AYP5	Q8ayp5 trachurus j
24	52	32.3	38	13	Q8AYP4	Q8ayp4 acipenser s
25	52	32.3	138	13	Q98SP4	Q98sp4 oncorhynchu
26	52	32.3	171	13	Q9PUF8	Q9puf8 xenopus lae
27	52	32.3	173	13	Q98SP5	Q98sp5 oncorhynchu
28	51.5	32.0	285	17	Q8TPJ9	Q8tpj9 methanosarc
29	51	31.7	89	13	Q98SP6	Q98sp6 anas platyr
30	51	31.7	352	5	Q9XXQ1	Q9xxq1 caenorhabdi
31	51	31.7	810	4	Q9NTW8	Q9ntw8 homo sapien
32	51	31.7	867	4	Q9UFX9	Q9ufx9 homo sapien
33	50.5	31.4	175	13	Q98TU3	Q98tu3 brachydanio
34	50.5	31.4	210	5	Q95XL4	Q95xl4 caenorhabdi
35	50.5	31.4	372	10	Q9XFW9	Q9xfw9 cicer ariet
36	50	31.1	171	10	Q9FGY5	Q9fgy5 arabidopsis
37	50	31.1	185	11	Q8C0Y4	Q8c0y4 mus musculu
38	50	31.1	244	16	Q8Z1U5	Q8z1u5 salmonella
39	50	31.1	302	16	Q9K3M4	Q9k3m4 streptomyce
40	50	31.1	331	5	O18301	O18301 caenorhabdi
41	50	31.1	366	11	Q9WTM1	Q9wtm1 mus musculu
42	50	31.1	401	11	Q9D9E0	Q9d9e0 mus musculu
43	50	31.1	1003	5	Q8IAC0	Q8iac0 halocynthia
44	49.5	30.7	285	17	Q8Q0X5	Q8q0x5 methanosarc
45	49.5	30.7	378	5	Q25062	Q25062 hydractinia

ALIGNMENTS

RESULT 1
Q8MJ25
ID Q8MJ25 PRELIMINARY; PRT; 176 AA.
AC Q8MJ25;
DT 01-OCT-2002 (TrEMBLrel. 22, Created)
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE Preproglucagon (Fragment).
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Pancreas;
RA Limesand S.W., Hay W.W. Jr.;
RT "Characterization of the endocrine pancreas in an ovine placental
RT insufficiency IUGR fetus.";
RL Submitted (JUL-2002) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF529185; AAM94409.1; -.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 3.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 3.
DR PROSITE; PS00260; GLUCAGON; 2.
FT NON_TER 176 176
SQ SEQUENCE 176 AA; 20335 MW; 13174039BD6CE2B3 CRC64;

Query Match 100.0%; Score 161; DB 6; Length 176;
Best Local Similarity 100.0%; Pred. No. 3.1e-16;
Matches 31; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```
Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128
```

RESULT 2

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Q95LG0
ID   Q95LG0      PRELIMINARY;      PRT;   180 AA.
AC   Q95LG0;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Preproglucagon.
OS   Canis familiaris (Dog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX   NCBI_TaxID=9615;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Irwin D.M.;
RT   "cDNA cloning of proglucagon from the stomach and pancreas of the
RT   dog.";
RL   Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF308439; AAL09425.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
SQ   SEQUENCE   180 AA;  21114 MW;  80F66941AFC324FD CRC64;

  Query Match           100.0%;  Score 161;  DB 6;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-16;
  Matches   31;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              |||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 128


RESULT 3
Q8UWL9
ID   Q8UWL9      PRELIMINARY;      PRT;   220 AA.
AC   Q8UWL9;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Proglucagon.
OS   Hoplobatrachus rugulosus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae;
OC   Hoplobatrachus.
OX   NCBI_TaxID=110072;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Yeung C.-M., Chow B.K.C.;
RT   "Identification of a proglucagon cDNA from Rana tigrina rugulosa that
RT   encodes two GLP-1s.";
RL   Gen. Comp. Endocrinol. 124:0-0(2001).
DR   EMBL; AF324209; AAL35758.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; 4.
SQ   SEQUENCE   220 AA;  25615 MW;  C72D926E7F89E381 CRC64;

  Query Match           80.1%;  Score 129;  DB 13;  Length 220;
  Best Local Similarity  76.7%;  Pred. No. 2.9e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||||::|||| :|||||: ||:|||
Db        135 HAEGTFTSDMTSYLEEKAAKEFVDWLIKGR 164


RESULT 4
Q91409
ID   Q91409      PRELIMINARY;      PRT;    72 AA.
AC   Q91409; Q91232;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   PROGLUCAGON (Fragment).
OS   Oncorhynchus tschawytscha (Chinook salmon) (King salmon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=74940;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
DR   EMBL; S78474; AAD14283.1; -.
DR   EMBL; U19920; AAC59670.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   72 AA;  8293 MW;  8584352B1C260A31 CRC64;

  Query Match           73.3%;  Score 118;  DB 13;  Length 72;
  Best Local Similarity  66.7%;  Pred. No. 3.5e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:|||||:||: ||||:|::|| ||
Db         39 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 68


RESULT 5
Q91971
ID   Q91971      PRELIMINARY;      PRT;   178 AA.
AC   Q91971; Q91408; Q91188; Q92169;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon I precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19913; AAC59667.1; -.
DR   EMBL; U19917; AAC59669.1; -.
DR   EMBL; U19918; AAC60212.1; -.
DR   EMBL; U19919; AAC60213.1; -.
DR   EMBL; U19918; AAC60213.1; JOINED.
DR   EMBL; S78475; AAB34505.1; -.
DR   EMBL; S78473; AAB34504.2; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
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DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL       1      ?       POTENTIAL.
FT   PEPTIDE      ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE     52     80       GLUCAGON.
FT   PEPTIDE     85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC   124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  20034 MW;  5CF6980CF2A9D58E CRC64;

  Query Match           73.3%;  Score 118;  DB 13;  Length 178;
  Best Local Similarity   66.7%;  Pred. No. 1e-09;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:||||||:||: ||||:|::||  ||
Db         90 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 119


RESULT 6
Q91189
ID   Q91189      PRELIMINARY;      PRT;   178 AA.
AC   Q91189; Q92168;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Glucagon II precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19914; AAC59668.1; -.
DR   EMBL; U19916; AAC60210.1; -.
DR   EMBL; U19915; AAC60210.1; JOINED.
DR   EMBL; U19915; AAC60209.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL       1      ?       POTENTIAL.
FT   PEPTIDE      ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE     52     80       GLUCAGON.
FT   PEPTIDE     85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC   124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  19998 MW;  E89D73866CD91C66 CRC64;

  Query Match           70.2%;  Score 113;  DB 13;  Length 178;
  Best Local Similarity   65.5%;  Pred. No. 5.9e-09;
  Matches   19;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKG 29
              ||:||:||||||:||: ||||:|::||  |
Db         90 HADGTYTSDVSTYLQDQAAKDFVSWLKSG 118


RESULT 7
Q9DDE6
ID   Q9DDE6      PRELIMINARY;      PRT;   121 AA.
AC   Q9DDE6;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Glucagon polyprotein.
GN   GCG OR GLU.
OS   Brachydanio rerio (Zebrafish) (Danio rerio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99425190; PubMed=10495291;
RA   Argenton F., Zecchin E., Bortolussi M.;
RT   "Early appearance of pancreatic hormone-expressing cells in the
RT   zebrafish embryo.";
RL   Mech. Dev. 87:217-221(1999).
DR   EMBL; AJ133697; CAC20108.1; -.
DR   HSSP; P01274; 1GCN.
DR   ZFIN; ZDB-GENE-010219-1; gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Polyprotein.
FT   CHAIN        49     79       GLUCAGON.
FT   CHAIN        88    121       GLUCAGON-LIKE PEPTIDE 1.
SQ   SEQUENCE   121 AA;  13537 MW;  A85385F690DA180F CRC64;

  Query Match           64.0%;  Score 103;  DB 13;  Length 121;
  Best Local Similarity   66.7%;  Pred. No. 1.2e-07;
  Matches   20;  Conservative    5;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||||||: |||: |:| |  |:
Db         88 HAEGTYTSDVSSYLQDQAAQRFVARLKSGQ 117


RESULT 8
Q9DG43
ID   Q9DG43      PRELIMINARY;      PRT;    96 AA.
AC   Q9DG43;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Proglucagon (Fragment).
OS   Ambloplites rupestris (Rock bass).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoidei;
OC   Centrarchidae; Ambloplites.
OX   NCBI_TaxID=109273;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Al-Mahrouki A.A., Irwin D.M., Youson J.H.;
RT   "Rock Bass Proglucagon.";
RL   Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF190499; AAG16778.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
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DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   CHAIN         1    >29       GLUCAGON.
FT   CHAIN        39    >70       GLUCAGON-LIKE PEPTIDE 1.
FT   CHAIN        86    >96       GLUCAGON-LIKE PEPTIDE 2.
FT   NON_TER      96     96
SQ   SEQUENCE   96 AA;  11225 MW;  6435033EBDDC00CE CRC64;

  Query Match             55.9%;  Score 90;  DB 13;  Length 96;
  Best Local Similarity   46.7%;  Pred. No. 8.7e-06;
  Matches   14;  Conservative   10;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |::||||:| ::||| : |::|| ||:  :
Db          1 HSQGTFTNDYTNYLEDRQAQDFIRWLMNNK 30


RESULT 9
Q9CVF1
ID   Q9CVF1      PRELIMINARY;      PRT;   130 AA.
AC   Q9CVF1;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Gastric inhibitory polypeptide (Fragment).
GN   GIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Small intestine;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK008525; BAB25720.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:107504; Gip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   130 AA;  14906 MW;  95B3B6E91E2A7992 CRC64;

  Query Match             41.6%;  Score 67;  DB 11;  Length 130;
  Best Local Similarity   41.9%;  Pred. No. 0.038;
  Matches   13;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              :|||| || |  ::    ::|: ||:  ||
Db         30 YAEGTFISDYSIAMDKIRQQDFVNWLLAQRG 60


RESULT 10
Q9D887
ID   Q9D887      PRELIMINARY;      PRT;   144 AA.
AC   Q9D887;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Gastric inhibitory polypeptide.
GN   GIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Small intestine;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK008308; BAB25592.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:107504; Gip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   144 AA;  16389 MW;  36E6518665D4DA8C3 CRC64;

  Query Match             41.6%;  Score 67;  DB 11;  Length 144;
  Best Local Similarity   41.9%;  Pred. No. 0.043;
  Matches   13;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGRG 31
              :|||| || |  ::    ::|: ||:  ||
Db         44 YAEGTFISDYSIAMDKIRQQDFVNWLLAQRG 74


RESULT 11
Q8MI77
ID   Q8MI77      PRELIMINARY;      PRT;   170 AA.
AC   Q8MI77;
DT   01-OCT-2002 (TrEMBLrel. 22, Created)
DT   01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Vasoactive intestinal polypeptide precursor.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22092342; PubMed=12097482;
RA   Hamelink C., Lee H.-W., Chen Y., Grimaldi M., Eiden L.E.;
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RT   "Coincident elevation of cAMP and calcium influx by PACAP-27
RT   synergistically regulates vasoactive intestinal polypeptide gene
RT   transcription through a novel PKA-independent signaling pathway.";
RL   J. Neurosci. 22:5310-5320(2002).
DR   EMBL; AF503910; AAM28152.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Signal.
FT   SIGNAL        1     22       POTENTIAL.
FT   CHAIN        81    107       PHI.
FT   CHAIN       125    152       VIP.
SQ   SEQUENCE   170 AA;  19164 MW;  9C6A6049AF7BFF81 CRC64;

  Query Match             37.3%;  Score 60;  DB 6;  Length 170;
  Best Local Similarity   43.3%;  Pred. No. 0.61;
  Matches   13;  Conservative    6;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:| |||| |  |   :||:::  |:  |
Db         81 HADGVFTSDYSRLLGQLSAKKYLESLIGKR 110


RESULT 12
Q9D2Z7
ID   Q9D2Z7      PRELIMINARY;      PRT;   171 AA.
AC   Q9D2Z7;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Vasoactive intestinal polypeptide.
GN   VIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Cecum;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK018599; BAB31301.1; -.
DR   MGD; MGI:98933; Vip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
SQ   SEQUENCE   171 AA;  19135 MW;  134A434DB6DF1254 CRC64;

  Query Match             36.6%;  Score 59;  DB 11;  Length 171;
  Best Local Similarity   43.3%;  Pred. No. 0.87;
  Matches   13;  Conservative    6;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:| |||| |  |   :||:::  |:  |
Db         82 HADGVFTSDYSRLLGQISAKKYLESLIGKR 111


RESULT 13
Q93IH2
ID   Q93IH2      PRELIMINARY;      PRT;   389 AA.
AC   Q93IH2;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Sulfur transferase precursor.
GN   STRA.
OS   Wolinella succinogenes.
OC   Bacteria; Proteobacteria; Epsilonproteobacteria; Campylobacterales;
OC   Helicobacteraceae; Wolinella.
OX   NCBI_TaxID=844;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Schneider P.V., Simon J., Klimmek O.;
RT   "The sulfur transferase of Wolinella succinogenes.";
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AJ318789; CAC50085.1; -.
DR   InterPro; IPR001763; Rhodanese-like.
DR   Pfam; PF00581; Rhodanese; 2.
DR   SMART; SM00450; RHOD; 3.
KW   Signal; Transferase.
FT   SIGNAL        1     21       POTENTIAL.
FT   CHAIN        22    389       SULFUR TRANSFERASE.
SQ   SEQUENCE   389 AA;  41949 MW;  6C60850CAD9C4B9C CRC64;

  Query Match             36.6%;  Score 59;  DB 2;  Length 389;
  Best Local Similarity   39.3%;  Pred. No. 2.3;
  Matches   11;  Conservative    8;  Mismatches    9;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
              ||:| |   ::    :|::|:||:| | |
Db        314 HAKGKFAGSINIEKKGKSAQEFVALLPK 341


RESULT 14
Q9DE29
ID   Q9DE29      PRELIMINARY;      PRT;   172 AA.
AC   Q9DE29;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide.
GN   ADCYAP1.
OS   Brachydanio rerio (Zebrafish) (Danio rerio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Fradinger E.A., Sherwood N.M.;
RT   "Characterization of the gene encoding both growth hormone-releasing
RT   hormone (GRF) and pituitary adenylate cyclase-activating polypeptide
RT   (PACAP) in the zebrafish.";
RL   Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF217251; AAG36782.1; -.
DR   ZFIN; ZDB-GENE-020809-4; adcyap1.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
FT   CHAIN        81    125       GROWTH HORMONE-RELEASING HORMONE.
```

```
FT   CHAIN       128    165       PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE.
SQ   SEQUENCE   172 AA;  19558 MW;  458117F0042E36DD CRC64;

  Query Match             33.5%;  Score 54;  DB 13;  Length 172;
  Best Local Similarity   33.3%;  Pred. No. 5;
  Matches   10;  Conservative    8;  Mismatches   12;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |::| ||   | | :  | |:::| ::  |
Db        128 HSDGVFTDSYSRYRKQMAVKKYLATVLGKR 157


RESULT 15
Q90XZ4
ID   Q90XZ4      PRELIMINARY;      PRT;   175 AA.
AC   Q90XZ4;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide precursor.
OS   Ictalurus punctatus (Channel catfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Siluriformes;
OC   Ictaluridae; Ictalurus.
OX   NCBI_TaxID=7998;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21255738; PubMed=11356048;
RA   Small B.C., Nonneman D.;
RT   "Sequence and expression of a cDNA encoding both pituitary adenylate
RT   cyclase activating polypeptide and growth hormone-releasing hormone-
RT   like peptide in channel catfish (Ictalurus punctatus).";
RL   Gen. Comp. Endocrinol. 122:354-363(2001).
DR   EMBL; AF321243; AAK66970.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Signal.
FT   SIGNAL        1     20       POTENTIAL.
FT   CHAIN        84    128       GROWTH HORMONE-RELEASING HORMONE.
FT   CHAIN       131    168       PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE.
SQ   SEQUENCE   175 AA;  20070 MW;  FFE0EA22C68321C9 CRC64;

  Query Match             33.2%;  Score 53.5;  DB 13;  Length 175;
  Best Local Similarity   40.0%;  Pred. No. 6.1;
  Matches   12;  Conservative    6;  Mismatches   11;  Indels    1;  Gaps    1;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |::| ||   | | :  | |:::|  | ||
Db        131 HSDGIFTDSYSRYRKQMAVKKYLA-AVLGR 159


Search completed: October 15, 2003, 10:55:48
Job time : 63.9836 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:33:21 ; Search time 59.5082 Seconds
(without alignments)
80.019 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 1107863 seqs, 158726573 residues

Total number of hits satisfying chosen parameters: 1107863

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_19Jun03:*
1: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
2: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1981.DAT:*
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4: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1983.DAT:*
5: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1984.DAT:*
6: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1985.DAT:*
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9: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1988.DAT:*
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15: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1994.DAT:*
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17: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1996.DAT:*
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20: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
21: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2000.DAT:*
22: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2001.DAT:*
23: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2002.DAT:*
24: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA2003.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	15	AAR45435	Insulinotropin der
2	155	100.0	30	15	AAR63247	Insulinotropin (GL
3	155	100.0	30	16	AAR69063	Amidated Glucagon
4	155	100.0	30	16	AAR79809	Glucagon like pept
5	155	100.0	30	16	AAR80548	Human glucagon lik
6	155	100.0	30	17	AAR98956	Target peptide (GL
7	155	100.0	30	17	AAR98975	GLP1(7-35)-NH2. S
8	155	100.0	30	18	AAW16383	Glucagon-like pept
9	155	100.0	30	19	AAW63288	Glucagon-like pept
10	155	100.0	30	19	AAW63182	GLP-1(7-36). Homo
11	155	100.0	30	19	AAW50906	Glucagon-like pept
12	155	100.0	30	20	AAY42935	Glucagon-like pept
13	155	100.0	30	20	AAY27374	Glucagon-like pept
14	155	100.0	30	20	AAY39773	Glucagon like pept
15	155	100.0	30	20	AAY34198	GLP-1 mutant pepti
16	155	100.0	30	20	AAY31503	Glucagon-like pept
17	155	100.0	30	20	AAY22166	GLP-1-like peptide
18	155	100.0	30	20	AAY03719	Amino acid sequenc
19	155	100.0	30	21	AAB11283	GLP-1 peptide SEQ
20	155	100.0	30	21	AAB21340	GLP-1 peptide GLP-
21	155	100.0	30	21	AAB21108	Human glucagon-lik
22	155	100.0	30	21	AAB07294	Modified Glucagon
23	155	100.0	30	21	AAB07313	Modified Glucagon
24	155	100.0	30	21	AAB07314	Modified Glucagon
25	155	100.0	30	21	AAY53280	Glucagon-like pept
26	155	100.0	30	21	AAY78949	Glucagon-like pept
27	155	100.0	30	22	AAU07375	Mammalian glucagon
28	155	100.0	30	22	AAE09260	Human glucagon-lik
29	155	100.0	30	22	AAG63303	An insoluble gluca
30	155	100.0	30	22	AAB82336	Glucagon-like pept
31	155	100.0	30	22	AAB83291	GLP-1 peptide #2.
32	155	100.0	30	22	AAG70461	GLP-1. Unidentifi
33	155	100.0	30	22	AAB91170	Pancreatic hormone
34	155	100.0	30	22	AAB91181	Pancreatic hormone
35	155	100.0	30	22	AAB60124	Human glucagon-lik
36	155	100.0	30	22	AAB60249	Glucagon-like pept
37	155	100.0	30	22	AAB36416	Glucagon-like pept
38	155	100.0	30	22	AAB36429	Glucagon-like pept
39	155	100.0	30	22	AAB85922	Glucagon-like pept
40	155	100.0	30	23	ABR43001	Insulinotropic hor
41	155	100.0	30	23	ABG71254	Human glucagon-lik
42	155	100.0	30	23	AAO22094	Glucagon-like pept
43	155	100.0	30	23	ABB80097	Glucagon like pept
44	155	100.0	30	23	AAE14422	Mammalian glucagon
45	155	100.0	30	23	ABB07143	Glucagon-like pept

ALIGNMENTS

RESULT 1
AAR45435
ID AAR45435 standard; protein; 30 AA.
XX
AC AAR45435;
XX
DT 25-MAR-2003 (updated)
DT 27-JUN-1994 (first entry)
XX
DE Insulinotropin derivative.
XX
KW Insulinotropic; activity; enhancing insulin activity; treatment;
KW Type II diabetes.
XX
OS Synthetic.
XX
PN WO9325579-A1.
XX
PD 23-DEC-1993.
XX
PF 14-APR-1993; 93WO-US03388.
XX
PR 15-JUN-1992; 92US-0899073.
XX
PA (PFIZ) PFIZER INC.
XX
PI Andrews GC, Daumy GO, Francoeur ML, Larson ER;
XX
DR WPI; 1994-007457/01.
XX
PT New derivs. of glucagon-like peptide 1 and insulinotropin - used for
PT enhancing insulin action in a mammal, partic. by iontophoretic admin.

XX
PS Claim 3; Page 20; 32pp; English.
XX
CC The sequence is that of a derivative of insulinotropin which
CC has insulinotropic activity and is useful for enhancing insulin
CC action in a mammal, partic. for treating Type II diabetes
CC (claimed). It is partic. suited for delivery to a mammal by
CC ionophoresis.
CC (Updated on 25-MAR-2003 to correct PN field.)
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 15; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 2
AAR63247
ID AAR63247 standard; peptide; 30 AA.
XX
AC AAR63247;
XX
DT 25-MAR-2003 (updated)
DT 02-MAY-1995 (first entry)
XX
DE Insulinotropin (GLP-1(7-36)) for use in treating NIDDM.
XX
KW insulinotropic activity; GLP-1; glucagon-like protein 1; NIDDM;
KW non-insulin dependent diabetes mellitus; insulintropin; truncated.
XX
OS Synthetic.
XX
PN EP619322-A2.
XX
PD 12-OCT-1994.
XX
PF 10-FEB-1994; 94EP-0300981.
XX
PR 07-APR-1993; 93US-0044133.
XX
PA (PFIZ) PFIZER INC.
PA (SCIO-) SCIOS INC.
XX
PI Danley DE, Gelfand RA, Geoghegan KF, Kim Y, Lambert WJ;
PI Qi H, Oih, Hong Q, Yesook K;
XX
DR WPI; 1994-311774/39.
XX
PT Treatment of non-insulin dependent diabetes mellitus - using a
PT glucagon-like peptide 1 or deriv. with prolonged action for
PT sustained glycaemic control
XX
PS Claim 2; Page 46; 70pp; English.
XX
CC This peptide is GLP-1(7-36) [GLP = glucagon-like peptide], a truncated
CC deriv. of GLP-1. GLP-1 and its deriv.s are useful in the treatment of
CC Non-Insulin Dependent Diabetes Mellitus (NIDDM). During processing in
CC the pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino
CC acid peptide having amino acids 7-37 of GLP-1, alternatively referred
CC to as insulinotropin. GLP-1(7-37) has insulinotropic activity, ie. it
CC is able to stimulate, or cause to be stimulated, the synthesis of the
CC hormone insulin. Other derivs. of GLP-1 are shown in AAR63246-51. It
CC has been discovered that prolonged plasma elevations of GLP-1, and
CC related polypeptides, are necessary during the meal and beyond to
CC achieve sustained glycemic control in patients with NIDDM. The invention
CC provides a compsn. that has prolonged action after each administration.
CC (Updated on 25-MAR-2003 to correct PN field.)
CC (Updated on 25-MAR-2003 to correct PA field.)
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 15; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 3
AAR69063
ID AAR69063 standard; peptide; 30 AA.
XX
AC AAR69063;
XX
DT 25-MAR-2003 (updated)
DT 23-AUG-1995 (first entry)
XX
DE Amidated Glucagon like peptide 1 (GLP1) (7-36)-NH2.
XX
KW Glucagon Like Peptide; GLP; transpeptidation; endopeptidase;
KW trypsin; thrombin; cleavage.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 30
FT /label= Arg-NH2
XX
PN WO9503405-A2.
XX
PD 02-FEB-1995.
XX
PF 19-JUL-1994; 94WO-US08125.
XX
PR 20-JUL-1993; 93US-0095162.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI Henriksen D, Manning S, Partridge B, Stout J, Wagner FW;
XX
DR WPI; 1995-075233/10.
XX
PT Transpeptidation of recombinant polypeptides - using
PT endopeptidase such as trypsin or thrombin to modify C-terminal
PT residue.
XX
PS Claim 33; Page 50; 69pp; English.
XX
CC The naturally occurring sequence of Glucagon Like Peptide 1 (GLP1)
CC is AAR69072. It is a 36 AA peptide that has been recombinantly
CC produced but without a mechanism for providing for the amidation of
CC the C-terminal Arg residue. Amidated recombinant GLP1 (7-36)NH2
CC (AAR69063) was prepd. from a multicopy fusion protein contg. four
CC copies of a modified truncated GLP peptide having AA residues 7-34
CC of the native polypeptide and the terminal AA residues A-F-A at
CC residues 35-37 (GLP1 (7-34)-A-F-A) (AAR69064). The recombinant GLP1 (7-
CC 34)-A-F-A can be transpeptidated to yield the modified recombinant
CC native GLP1 (7-36)-NH2 (AAR69063) as follows. Trypsin was used to
CC cleave the peptide at the Lys-Ala bond in the presence of either
CC Gly-Arg-NH2 or Gly-Arg-Gly addition units so that the cleavage of
CC the Ala-Phe-Arg leaving unit is followed by the addition of
CC Gly-Arg-NH2 or Gly-Arg-Gly to the core GLP1 (7-34) to yield either
CC amidated 7-36 GLP1-NH2 or GLP1 7-36 with a terminal Gly (AAR69065).
CC (Updated on 25-MAR-2003 to correct PN field.)
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 16; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;

```
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 4
AAR79809
ID   AAR79809 standard; peptide; 30 AA.
XX
AC   AAR79809;
XX
DT   01-FEB-1996  (first entry)
XX
DE   Glucagon like peptide GLP-1 (7-36)amide.
XX
KW   Glucagon like peptide; GLP-1 (7-36)amide; type II diabetes;
KW   non-insulin dependent; divalent metal cation; zinc.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "amidated"
XX
PN   EP658568-A1.
XX
PD   21-JUN-1995.
XX
PF   02-DEC-1994;   94EP-0308950.
XX
PR   09-DEC-1993;   93US-0164277.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   Galloway JA,  Hoffmann JA;
XX
DR   WPI; 1995-217011/29.
XX
PT   New divalent metal complexes of glucagon-like peptide 1 - useful for
PT   treating type II diabetes
XX
PS   Claim 4; Page 4; 10pp; English.
XX
CC   AAR79809 is the glucagon like peptide GLP-1 (7-36)amide. When
CC   complexed to a divalent metal cation (pref. zinc) it can be
CC   used to treat type II (non-insulin dependent) diabetes.
XX
SQ   Sequence   30 AA;

  Query Match            100.0%;  Score 155;  DB 16;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 5
AAR80548
ID   AAR80548 standard; peptide; 30 AA.
XX
AC   AAR80548;
XX
DT   28-FEB-1996  (first entry)
XX
DE   Human glucagon like peptide (GLP-1).
XX
KW   Exendin-4; diabetes mellitus; hyperglycaemia;
KW   insulinotropic peptide; glucagon like peptide; GLP-1.
XX
OS   Homo sapiens.
XX
PN   US5424286-A.
XX
PD   13-JUN-1995.
XX
PF   24-MAY-1993;   93US-0066480.
XX
PR   24-MAY-1993;   93US-0066480.
XX
PA   (ENGJ/) ENG J.
XX
PI   Eng J;
XX
DR   WPI; 1995-262627/34.
XX
PT   Stimulating/inhibiting insulin release with exendin polypeptide(s) -
PT   for treating diabetes mellitus and preventing hyperglycaemia.
XX
PS   Disclosure; Columns 5-6; 17pp; English.
XX
CC   AAR80548 is the human glucagon like peptide (GLP-1), to which the
CC   Heloderma horridum/suspectum exendin-3/-4 peptides are analogous.
CC   The exendin peptides are insulinotropic, and can therefore be used
CC   in the treatment of diabetes mellitus (types I or II), and for the
CC   prevention of hyperglycaemia.
XX
SQ   Sequence   30 AA;

  Query Match            100.0%;  Score 155;  DB 16;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
AAR98956
ID   AAR98956 standard; peptide; 30 AA.
XX
AC   AAR98956;
XX
DT   15-JAN-1997  (first entry)
XX
DE   Target peptide (GLP1(7-36)) used in fusion protein construct.
XX
KW   Fusion protein construct; isolation; purification;
KW   growth hormone releasing factor; glucagon-like peptide 1;
KW   parathyroid hormone; inclusion body; carbonic anhydrase.
XX
OS   Synthetic.
XX
PN   WO9617942-A1.
XX
PD   13-JUN-1996.
XX
PF   07-DEC-1995;   95WO-US15800.
XX
PR   07-DEC-1994;   94US-0350530.
XX
PA   (BION-) BIONEBRASKA INC.
XX
PI   De LA MOTTE RS,  Henriksen DB,  Holmquist B,  Manning SD;
PI   Partridge BE, Stout JS,  Wagner PW;
XX
DR   WPI; 1996-287186/29.
XX
PT   Isolation and purifion of peptide(s) from fusion protein constructs
PT   - which include a carbonic anhydrase and a variable fused
PT   polypeptide
XX
```

PS Claim 58; Page 50; 67pp; English.
XX
CC A new method for the isolation and/or purification of a recombinant
CC peptide employs a fusion protein construct (FPC) comprising a
CC carbonic anhydrase and a variable fused polypeptide containing a
CC target peptide. The method comprises precipitating either the FPC or
CC a fragment of the FPC including the carbonic anhydrase. An
CC alternative method of producing the peptide comprises expressing the
CC FPC as part of an inclusion body. The target peptides of the FPC are
CC derived from growth hormone releasing factor (GRF), glucagon-like
CC peptide 1 (GLP1) or parathyroid hormone (PTH). This sequence
CC corresponds to amino acids 7-36 of GLP1.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 17; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 7
AAR98975
ID AAR98975 standard; Peptide; 30 AA.
XX
AC AAR98975;
XX
DT 03-DEC-1996 (first entry)
XX
DE GLP1(7-35)-NH2.
XX
KW GLP1; C-amide; C-amidated peptide; alpha-carboxamide;
KW recombinant protein; fusion protein; transpeptidation.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 30
FT /note= "C-terminal amide"
XX
PN WO9617941-A2.
XX
PD 13-JUN-1996.
XX
PF 07-DEC-1995; 95WO-US15799.
XX
PR 07-DEC-1994; 94US-0350528.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI Heriksen DB, Holmquist B, Patridge BE, Stout JS;
PI Wagner FW;
XX
DR WPI; 1996-287185/29.
XX
PT Production of C-terminal alpha-carboxamidated peptide(s) - by
PT cleavage and transpeptidation of recombinant multicopy peptide(s) or
PT fusion constructs
XX
PS Example 16; Page 69; 93pp; English.
XX
CC Amidated recombinant GLP1(7-36)-NH2 (AAR98975) may be prepd. from
CC a recombinant multicopy fusion peptide by cleavage, transamidation
CC and photochemical rearrangement. A DNA construct is formed by
CC joining 4 copies of the coding sequence for GLP1(7-36)-Met
CC (AAR98976) and a linker peptide including a thrombin cleavage site.
CC Expression in E. coli, followed by thrombin and CNBr digestion yields
CC GLP1(7-36)-Hse (AAR98977), which is subjected to transamidation and
CC UV irradiation to yield GLP1(7-36)-NH2. The amidated peptide may also
CC be produced via GLP1(7-35)-Met (AAR98978) using a transpeptidation
CC reaction.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 17; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 8
AAW16383
ID AAW16383 standard; Peptide; 30 AA.
XX
AC AAW16383;
XX
DT 25-MAR-2003 (updated)
DT 01-OCT-1997 (first entry)
XX
DE Glucagon-like peptide-1(7-36).
XX
KW Glucagon-like peptide-1(7-36); GLP-1 (7-36); insulin secretagogue;
KW insulinotropic hormone; type II diabetes mellitus; therapy.
XX
OS Rattus sp.
XX
PN US5614492-A.
XX
PD 25-MAR-1997.
XX
PF 23-NOV-1993; 93US-0156800.
XX
PR 05-SEP-1991; 91US-0756215.
PR 05-MAY-1986; 86US-0859928.
PR 26-JAN-1988; 88US-0148517.
PR 01-JUN-1990; 90US-0532111.
PR 23-NOV-1993; 93US-0156800.
XX
PA (GEHO) GEN HOSPITAL CORP.
XX
PI Habener JF;
XX
DR WPI; 1997-201513/18.
XX
PT Glucagon-like peptide-1 fragment comprising amino acids 7-36 -
PT useful for enhancing insulin production in pancreatic islet cells,
PT especially for treating type II diabetes mellitus
XX
PS Claim 1; Column 34; 37pp; English.
XX
CC Glucagon-like peptide-1 (7-36) (AAW16383) comprises amino acid
CC residues 7-36 of rat glucagon-like peptide-1 (GLP-1) (see also
CC AAW16384). It is naturally produced from GLP-1 in the intestine
CC and to a lesser extent in the pancreas. GLP-1(7-36) has
CC insulinotropic activity, being able to stimulate the synthesis
CC and secretion of insulin from the pancreas. It can be produced
CC by chemical synthesis or by proteolytic digestion of GLP-1 for use
CC as an insulin secretagogue or for the treatment of type II diabetes
CC mellitus.
CC (Updated on 25-MAR-2003 to correct PF field.)
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 18; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

```
RESULT 9
AAW63288
ID   AAW63288 standard; peptide; 30 AA.
XX
AC   AAW63288;
XX
DT   29-SEP-1998  (first entry)
XX
DE   Glucagon-like peptide-1 (7-36) amide.
XX
KW   GLP-1; glucagon-like peptide; obesity.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "C-terminal amide"
XX
PN   WO9819698-A1.
XX
PD   14-MAY-1998.
XX
PF   04-NOV-1997;   97WO-US20114.
XX
PR   30-OCT-1997;   97US-0961405.
PR   05-NOV-1996;   96US-0030213.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   DiMarchi RD,  Efendic S;
XX
DR   WPI; 1998-286595/25.
XX
PT   Use of glucagon-like peptide-1 and analogues and derivatives - to
PT   reduce body weight, e.g., in treatment of obesity
XX
PS   Claim 12; Page 18; 42pp; English.
XX
CC   The patent describes a new method of reducing body weight which
CC   comprises administration of a composition comprising: (i) glucagon-
CC   like peptide-1 (GLP-1); (ii) a GLP-1 analogue; (iii) a GLP-1 derivative;
CC   (iv) an agonist of the GLP-1 receptor; (v) an agonist of the GLP-1
CC   signal transduction cascade; (vi) a compound which stimulates synthesis
CC   of endogenous GLP-1; (vii) a compound that stimulates release of
CC   endogenous GLP-1; or (viii) a salt of a material described in (i)-(vii).
CC   The method may be used for treatment of obesity. The present sequence,
CC   GLP-1 (7-36) amide, represents a preferred GLP-1 compound which can be
CC   used in the method.
XX
SQ   Sequence   30 AA;

  Query Match           100.0%;  Score 155;  DB 19;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
AAW63182
ID   AAW63182 standard; peptide; 30 AA.
XX
AC   AAW63182;
XX
DT   16-SEP-1998  (first entry)
XX
DE   GLP-1(7-36).
XX
KW   Glucagon-like peptide-1; GLP-1; diabetes; lipophilic; tetradecanoyl;
KW   carboxynonadecanoyl; deoxycholoyl; choloyl; lithocholoyl.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "optionally the C-terminal is in amide form"
XX
PN   WO9808871-A1.
XX
PD   05-MAR-1998.
XX
PF   22-AUG-1997;   97WO-DK00340.
XX
PR   20-DEC-1996;   96DK-0001470.
PR   30-AUG-1996;   96DK-0000931.
PR   08-NOV-1996;   96DK-0001259.
XX
PA   (NOVO ) NOVO-NORDISK AS.
XX
PI   Knudsen LB,  Nielsen PF,  Sorensen PO;
XX
DR   WPI; 1998-239721/21.
XX
PT   Glucagon-like peptide-1 derivatives which have lipophilic
PT   substituent - exhibit protracted profiles of action relative to
PT   known glucagon-like peptide-1 compounds and are useful in
PT   treatment of diabetes
XX
PS   Claim 36; Page -; 76pp; English.
XX
CC   New derivatives of glucagon-like peptide-1 (GLP-1) and its fragments
CC   and their analogues are disclosed in which at least one amino acid
CC   residue of the parent peptide has a lipophilic substituent attached
CC   to it. The GLP-1 fragment is preferably GLP-1(A-C) where A is 1-7 and
CC   C is 35-45. The lipophilic substituent is typically tetradecanoyl,
CC   carboxynonadecanoyl, deoxycholoyl, choloyl or lithocholoyl, and it
CC   is attached e.g. to the epsilon-amino group of a Lys residue in the
CC   peptide. The present sequence represents a preferred parent GLP-1
CC   fragment to which the lipophilic substituent is to be attached.
CC   GLP-1 and its analogues and fragments may be used in treatment of
CC   type 1 and type 2 diabetes. Prior art analogues exhibit a high
CC   clearance rate from the body, which limits their usefulness. The
CC   new lipophilically substituted compounds have a protracted profile
CC   of action compared with known analogues, e.g. GLP-1(7-37).
CC   (N.B. The present sequence is described by name in the patent
CC   specification but is not explicitly shown. It is deduced from the
CC   protein sequence shown in Swiss-Prot entry P01275 using information
CC   given in the patent.)
XX
SQ   Sequence   30 AA;

  Query Match           100.0%;  Score 155;  DB 19;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
AAW50906
ID   AAW50906 standard; peptide; 30 AA.
XX
AC   AAW50906;
XX
DT   17-AUG-1998  (first entry)
XX
DE   Glucagon-like peptide-1 analogue SEQ ID NO:5.
XX
KW   Glucagon-like peptide-1; GLP-1 (7-37); GLP-1 analogue; surgical trauma;
KW   stress; hormonal response; insulin resistance; catabolic reaction;
```

```
KW   human; incretin hormone.
XX
OS   Synthetic.
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "amidated"
XX
PN   WO9808873-A1.
XX
PD   05-MAR-1998.
XX
PF   26-AUG-1997;    97WO-US15042.
XX
PR   21-AUG-1997;    97US-0024982.
PR   30-AUG-1996;    96US-0024982.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   Efendic S;
XX
DR   WPI; 1998-239722/21.
XX
PT   Use of glucagon-like peptide-1 and analogues and their derivatives
PT   - to attenuate post-surgical catabolic changes, insulin resistance
PT   and hormonal responses to stress
XX
PS   Claim 1; Page 13; 42pp; English.
XX
CC   The present sequence represents a glucagon-like peptide-1 (GLP-1)
CC   analogue, which is used in the methods of the invention. The methods
CC   are: (1) for attenuating post-surgical catabolic changes and insulin
CC   resistance, comprising administering glucagon-like peptide-1 (GLP-1), a
CC   GLP-1 analogue, a GLP-1 derivative, or a salt of this compound; (2) for
CC   attenuating post-surgical catabolic changes and hormonal responses to
CC   stress, comprising administering a compound which exerts insulino-tropic
CC   activity by interacting with the same receptor (or receptors) with which
CC   GLP-1, GLP-1 analogues and GLP-1 derivatives interact in exerting their
CC   insulino-tropic activity, and (3) for attenuating post-surgical catabolic
CC   changes and hormonal responses to stress, comprising administering a
CC   compound which enhances insulin sensitivity by interacting with the same
CC   receptor (or receptors) with which GLP-1, GLP-1 analogues and GLP-1
CC   derivatives interact to enhance insulin sensitivity. The processes are
CC   useful for improving recovery after surgery by preventing the catabolic
CC   reaction and insulin resistance caused by surgical trauma and
CC   exacerbated by pre-operative fasting. GLP-1's short half-life, and hence
CC   the need for continuous administration, are not disadvantages, as the
CC   patient is usually hospitalised before surgery, and fluids are
CC   continuously administered parenterally, before, during and after surgery.
XX
SQ   Sequence   30 AA;

  Query Match           100.0%;  Score 155;  DB 19;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
AAY42935
ID   AAY42935 standard; peptide; 30 AA.
XX
AC   AAY42935;
XX
DT   20-DEC-1999  (first entry)
XX
DE   Glucagon-like peptide GLP-1 (7-36).
XX
KW   Glucagon-like peptide; GLP-1; antidiabetic; anti-obesity;
KW   insulinotropic; appetite suppressant.
XX
OS   Homo sapiens.
XX
PN   WO9943707-A1.
XX
PD   02-SEP-1999.
XX
PF   25-FEB-1999;    99WO-DK00085.
XX
PR   27-FEB-1998;    98DK-0000263.
PR   27-FEB-1998;    98DK-0000268.
PR   08-APR-1998;    98DK-0000508.
XX
PA   (NOVO ) NOVO-NORDISK AS.
XX
PI   Knudsen LB,  Huusfeldt PO,  Nielsen PF,  Madsen K;
XX
DR   WPI; 1999-540561/45.
XX
PT   New N-modified peptide derivatives, useful for treating diabetes,
PT   insulin resistance and obesity  -
XX
PS   Disclosure; Page 1; 62pp; English.
XX
CC   New glucagon-like peptide-1 (GLP-1) derivatives are disclosed which
CC   comprise residues 7-45 of GLP-1 or a fragment thereof, preferably
CC   residues 7-36, 7-37 or 7-38 or their analogues, in which (a) a
CC   lipophilic substituent is attached to at least one amino acid and (b)
CC   the N-terminal is substituted  with a group containing an optionally
CC   substituted 5- or 6-membered N-heterocycle, e.g. imidazolyl.  The
CC   compounds stimulate secretion of insulin, suppress secretion of
CC   glucagon, suppress gastric motility and/or restore glucose compliance
CC   to beta-cells. They are used to treat insulin-dependent or non-insulin-
CC   dependent diabetes mellitus, insulin resistance and obesity. They have
CC   a longer-lasting action than GLP-1 derivatives that lack the lipophilic
CC   substituent. Some of them also exist as partially structured micelle-
CC   like aggregates, so have improved solubility and stability. The present
CC   sequence is a specifically preferred example of a GLP-1 analogue on
CC   which the derivatives are based.
XX
SQ   Sequence   30 AA;

  Query Match           100.0%;  Score 155;  DB 20;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
AAY27374
ID   AAY27374 standard; peptide; 30 AA.
XX
AC   AAY27374;
XX
DT   26-NOV-1999  (first entry)
XX
DE   Glucagon-like peptide 1 (GLP-1) fragment (residues 7-36).
XX
KW   Glucagon; glucagon-like peptide 1; GLP-1; detergent; glycogenolytic;
KW   gluconeogenesis; insulin secretion; diabetes mellitus; obesity;
KW   spasmolytic; hypoglycemia.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "C-terminal amide"
XX
PN   WO9947160-A1.
```

XX
PD 23-SEP-1999.
XX
PF 08-MAR-1999; 99WO-DK00115.
XX
PR 13-MAR-1998; 98EP-0610006.
PR 18-MAR-1998; 98US-0078422.
XX
PA (NOVO) NOVO-NORDISK AS.
XX
PI Kaarsholm NC;
XX
DR WPI; 1999-561858/47.
XX
PT Aqueous solution of glucagon or glucagon-like peptide-1 stabilized with
PT charged detergent, for treating diabetes or obesity -
XX
PS Examples; Page 5; 27pp; English.
XX
CC The invention provides an aqueous solution that comprises: (i) at least
CC one glucagon or glucagon-like peptide-1 (GLP-1), or their analogs or
CC derivatives (I) and (ii) at least one detergent, other than dodecyl
CC phosphocholine. The peptide (I) has at least two positive or negative
CC charges or at least one charge of each sign. Glucagon is involved in
CC glycogenolytic and gluconeogenesis processes (it also has a spasmolytic
CC effect on smooth muscle) while GLP-1 promotes secretion of insulin and
CC suppresses that of glucagon. The polar head of detergent interacts with
CC charged side chains in (I) while the hydrophobic tail interacts with the
CC hydrophobic patch in (I). The solution is used to treat (non-)insulin-
CC dependent diabetes mellitus and obesity. Glucagon is also used in
CC radiology as a spasmolytic and for treating hypoglycemia. The detergent
CC stabilizes the solutions, which are available for immediate use and can
CC be stored for a long time at 4-25plusoC. The solutions may have pH
CC between 4 and 9, allowing selection of conditions that suppress chemical
CC degradation. The detergents are made from natural materials so have
CC better biological compatibility than known detergents. The present
CC sequence represents a GLP-1 peptide fragment.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 20; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 14
AAY39773
ID AAY39773 standard; peptide; 30 AA.
XX
AC AAY39773;
XX
DT 26-NOV-1999 (first entry)
XX
DE Glucagon like peptide-1 (7-36).
XX
KW Glucagon-like peptide-1; GLP-1; appetite suppression; human; diabetes;
KW spontaneous food intake; therapy.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Misc-difference 29
FT /note= "amidated"
XX
PN WO9947161-A1.
XX
PD 23-SEP-1999.
XX
PF 16-MAR-1999; 99WO-US05571.
XX
PR 19-MAR-1998; 98US-0078544.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI Goke B, Beglinger C, Coolidge TR;
XX
DR WPI; 1999-561859/47.
XX
PT New composition for controlling food intake especially in diabetes
PT sufferers -
XX
PS Claim 5; Page 22; 35pp; English.
XX
CC This sequence represents a glucagon-like peptide-1 sequence used in the
CC composition of the invention. The composition is for appetite
CC suppression, and comprises a compound binding to a GLP-1 receptor and a
CC pharmaceutical carrier. The composition can be administered to control
CC appetite and/or reduce spontaneous food intake in humans, especially in
CC humans with diabetes.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 20; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 15
AAY34198
ID AAY34198 standard; peptide; 30 AA.
XX
AC AAY34198;
XX
DT 16-NOV-1999 (first entry)
XX
DE GLP-1 mutant peptide, GLP-1(7-36).
XX
KW GLP-1; Glucagon-like peptide-1; human; type I diabetes; type II diabetes;
KW obesity; therapy; mutein.
XX
OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 30
FT /note= "optionally amidated"
XX
PN WO9943341-A1.
XX
PD 02-SEP-1999.
XX
PF 25-FEB-1999; 99WO-DK00084.
XX
PR 27-FEB-1998; 98DK-0000268.
PR 27-FEB-1998; 98DK-0000272.
XX
PA (NOVO) NOVO-NORDISK AS.
XX
PI Knudsen LB, Huusfeldt PO, Nielsen PF, Kaarsholm NC, Olsen HB;
PI Bjorn SE;
XX
DR WPI; 1999-540500/45.
XX
PT Composition containing stabilized derivatives of glucagon-like
PT peptide-1 with high alpha-helix content, for treating diabetes and
PT obesity
XX
PS Claim 30; Page -; 63pp; English.

XX
CC This sequence represents a mutant of the human glucagon-like peptide-1
CC (GLP-1), and has a helix content (determined by circular dichroism at
CC 222 nm in water at 20-24 degrees C) over 25, preferably 25-50,% at
CC peptide concentration about 10 microM. The GLP-1 mutant can be used in a
CC pharmaceutical composition of the invention. The compositions are used to
CC treat diabetes (both type I and particularly type II) and/or obesity.
CC They have better solubility and/or stability (against endogenous
CC diaminopeptidyl peptidase) than parent peptides, with long persistence in
CC the plasma and retention of biological activity. They form partially
CC structured micelle-like aggregates in solution, with the helix content
CC practically independent of concentration.
CC NOTE: This sequence was created from the human GLP-1 sequence using
CC information given in the specification.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 20; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

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Job time : 60.5082 secs

GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:51:07 ; Search time 19.6721 Seconds
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Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 328717 seqs, 42310858 residues

Total number of hits satisfying chosen parameters: 328717

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	1	US-08-066-480-6	Sequence 6, Appli
2	155	100.0	30	1	US-08-095-162-1	Sequence 1, Appli
3	155	100.0	30	1	US-08-470-220A-1	Sequence 1, Appli
4	155	100.0	30	2	US-08-927-227-1	Sequence 1, Appli
5	155	100.0	30	3	US-08-967-374-1	Sequence 1, Appli
6	155	100.0	30	3	US-09-348-136-1	Sequence 1, Appli
7	155	100.0	30	3	US-08-961-405A-5	Sequence 5, Appli
8	155	100.0	30	3	US-08-915-918A-5	Sequence 5, Appli
9	155	100.0	30	3	US-09-302-596-4	Sequence 4, Appli
10	155	100.0	30	3	US-08-472-349-3	Sequence 3, Appli
11	155	100.0	30	4	US-09-333-415-4	Sequence 4, Appli
12	155	100.0	30	4	US-09-585-181A-4	Sequence 4, Appli
13	155	100.0	30	4	US-09-209-799D-10	Sequence 10, Appl
14	155	100.0	30	4	US-09-975-905-1	Sequence 1, Appli
15	155	100.0	30	4	US-09-505-991-1	Sequence 1, Appli
16	155	100.0	30	4	US-09-573-809-1	Sequence 1, Appli
17	155	100.0	30	4	US-09-303-016-4	Sequence 4, Appli
18	155	100.0	30	4	US-09-212-663-4	Sequence 4, Appli
19	155	100.0	30	4	US-09-614-847-114	Sequence 114, App
20	155	100.0	30	4	US-09-997-792A-8	Sequence 8, Appli
21	155	100.0	30	4	US-09-805-507-4	Sequence 4, Appli
22	155	100.0	30	4	US-09-585-186A-5	Sequence 5, Appli
23	155	100.0	30	5	PCT-US95-15800-27	Sequence 27, Appl
24	155	100.0	31	1	US-09-025-951-1	Sequence 1, Appli
25	155	100.0	31	1	US-08-095-162-3	Sequence 3, Appli
26	155	100.0	31	1	US-08-295-913A-1	Sequence 1, Appli
27	155	100.0	31	1	US-08-470-220A-3	Sequence 3, Appli
28	155	100.0	31	2	US-08-807-263-3	Sequence 3, Appli
29	155	100.0	31	3	US-08-967-374-3	Sequence 3, Appli
30	155	100.0	31	3	US-08-961-405A-1	Sequence 1, Appli
31	155	100.0	31	3	US-08-915-918A-1	Sequence 1, Appli
32	155	100.0	31	3	US-09-302-596-3	Sequence 3, Appli
33	155	100.0	31	3	US-08-472-349-2	Sequence 2, Appli
34	155	100.0	31	4	US-09-623-618B-2	Sequence 2, Appli
35	155	100.0	31	4	US-09-623-618B-17	Sequence 17, Appl
36	155	100.0	31	4	US-09-623-618B-27	Sequence 27, Appl
37	155	100.0	31	4	US-09-623-618B-28	Sequence 28, Appl
38	155	100.0	31	4	US-09-333-415-3	Sequence 3, Appli
39	155	100.0	31	4	US-09-209-799D-1	Sequence 1, Appli
40	155	100.0	31	4	US-09-265-141A-1	Sequence 1, Appli
41	155	100.0	31	4	US-09-505-991-3	Sequence 3, Appli
42	155	100.0	31	4	US-09-303-016-3	Sequence 3, Appli
43	155	100.0	31	4	US-09-212-663-3	Sequence 3, Appli
44	155	100.0	31	4	US-09-657-332A-2	Sequence 2, Appli
45	155	100.0	31	4	US-09-657-332A-17	Sequence 17, Appl

ALIGNMENTS

```
RESULT 1
US-08-066-480-6
; Sequence 6, Application US/08066480
; Patent No. 5424286
;  GENERAL INFORMATION:
;    APPLICANT:  Eng, John
;    TITLE OF INVENTION:  Pharmaceutical Compositions And Use of
;    TITLE OF INVENTION:  Exendin-3 and Exendin-4 for Treatment of Diabetes Mellitus
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Allegretti & Witcoff, Ltd.
;      STREET:  10 S. Wacker Drive
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60606
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/066,480
;      FILING DATE:  24-MAR-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  McDonnell, John J
;      REGISTRATION NUMBER:  26,949
;      REFERENCE/DOCKET NUMBER:  93,084
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-715-1000
;      TELEFAX:  312-715-1234
;  INFORMATION FOR SEQ ID NO:  6:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    FEATURE:
;      NAME/KEY:  Peptide
;      LOCATION:  1..30
;      OTHER INFORMATION:  /label= GLP-1-7-36
;      OTHER INFORMATION:  /note= "GLP-1(7-36) fragment"
US-08-066-480-6

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 2
US-08-095-162-1
; Sequence 1, Application US/08095162
; Patent No. 5512459
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5512459west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/095,162
;      FILING DATE:  20-JUL-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-095-162-1

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 3
US-08-470-220A-1
; Sequence 1, Application US/08470220A
; Patent No. 5707826
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5707826west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/470,220A
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/095,162
;      FILING DATE:  20-JUL-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-470-220A-1

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 4
US-08-927-227-1
; Sequence 1, Application US/08927227A
; Patent No. 5977071
; GENERAL INFORMATION:
;  APPLICANT: Galloway, James A.
;  APPLICANT: Hoffmann, James A.
;  TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALGOGS,
;  TITLE OF INVENTION: COMPOSITIONS AND METHODS
;  FILE REFERENCE: X-9332B
;  CURRENT APPLICATION NUMBER: US/08/927,227A
;  CURRENT FILING DATE: 1997-09-10
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   OTHER INFORMATION: The arginine residue at position 30 is modified so
;   OTHER INFORMATION: as to replace the terminal carboxyl group with an
;   OTHER INFORMATION: amine.
US-08-927-227-1

  Query Match           100.0%;  Score 155;  DB 2;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 5
US-08-967-374-1
; Sequence 1, Application US/08967374
; Patent No. 6037143
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 6037143west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/967,374
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/520,485
;      FILING DATE:  29-AUG-1995
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G.
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.32-USD1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-967-374-1

  Query Match             100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
US-09-348-136-1
; Sequence 1, Application US/09348136
; Patent No. 6133235
; GENERAL INFORMATION:
;  APPLICANT:  Galloway, James A.
;  APPLICANT:  Hoffmann, James A.
;  TITLE OF INVENTION:  GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALGOGS,
;  TITLE OF INVENTION:  COMPOSITIONS AND METHODS
;  FILE REFERENCE:  X-9332B
;  CURRENT APPLICATION NUMBER: US/09/348,136
;  CURRENT FILING DATE:  1999-07-06
;  PRIOR APPLICATION NUMBER:  US 08/927,227
;  PRIOR FILING DATE:  1997-09-10
;  NUMBER OF SEQ ID NOS:  1
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 1
;    LENGTH: 30
;    TYPE: PRT
;    ORGANISM: Homo sapiens
;    FEATURE:
;    OTHER INFORMATION: The arginine residue at position 30 is modified so
;    OTHER INFORMATION: as to replace the terminal carboxyl group with an
;    OTHER INFORMATION: amine.
US-09-348-136-1

  Query Match             100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 7
US-08-961-405A-5
; Sequence 5, Application US/08961405A
; Patent No. 6191102
;  GENERAL INFORMATION:
;    APPLICANT:  DiMarchi, Richard D.
;    APPLICANT:  Efendic, Suad
;    TITLE OF INVENTION:  USE OF GLP-1 ANALOGS AND DERIVATIVES
;    TITLE OF INVENTION:  ADMINISTERED PERIPHERALLY IN REGULATION OF OBESITY
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  BARNES & THORNBURG
;      STREET:  200 W. Madison, Suite 2601
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60606
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/961,405A
;      FILING DATE:  30-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 60/030,213
;      FILING DATE:  05-NOV-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Martin, Alice O.
;      REGISTRATION NUMBER:  35,601
;      REFERENCE/DOCKET NUMBER:  3051/90264
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-357-1313
;      TELEFAX:  312-759-5646
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-961-405A-5

  Query Match             100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 8
US-08-915-918A-5
; Sequence 5, Application US/08915918A
; Patent No. 6277819
;  GENERAL INFORMATION:
;    APPLICANT:  Efendic, Suad
;    TITLE OF INVENTION:  USE OF GLP-1 OR ANALOGS IN TREATMENT OF
;    TITLE OF INVENTION:  MYOCARDIAL INFARCTION
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  BRINKS, HOFER, GILSON & LIONE
;      STREET:  NBC Tower - Suite 3600, 455 N. Cityfront
;      STREET:  Plaza Drive
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60611-5599
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/915,918A
;      FILING DATE:  21-AUG-1997
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Martin, Alice O.
;      REGISTRATION NUMBER:  35,601
;      REFERENCE/DOCKET NUMBER:  8792/28
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-321-4200
;      TELEFAX:  312-321-4299
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-915-918A-5

  Query Match           100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 9
US-09-302-596-4
; Sequence 4, Application US/09302596
; Patent No. 6284725
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas R.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
;  TITLE OF INVENTION:  Ischemic and Reperfused Tissue
;  FILE REFERENCE: P03660US1
;  CURRENT APPLICATION NUMBER: US/09/302,596
;  CURRENT FILING DATE:  1999-04-30
;  PRIOR APPLICATION NUMBER: 60/103,498
;  PRIOR FILING DATE: 1998-10-08
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: mammalian
US-09-302-596-4

  Query Match           100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
US-08-472-349-3
; Sequence 3, Application US/08472349
; Patent No. 6284727
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/472,349
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/181,655
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
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;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
;      UNITS:  N/A
US-08-472-349-3

  Query Match             100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
US-09-333-415-4
; Sequence 4, Application US/09333415
; Patent No. 6344180
; GENERAL INFORMATION:
;  APPLICANT:  Holst, Jens J.
;  APPLICANT:  Vilsboll, Tina
;  TITLE OF INVENTION:  GLP-1 as a Diagnostic Test to Determine Beta-Cell
;  TITLE OF INVENTION:  Function and the Presence of the Condition of IGT and
;  TITLE OF INVENTION:  Type-II Diabetes
;  FILE REFERENCE:  P03987US0
;  CURRENT APPLICATION NUMBER: US/09/333,415
;  CURRENT FILING DATE:  1999-06-15
;  NUMBER OF SEQ ID NOS:  13
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-333-415-4

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
US-09-585-181A-4
; Sequence 4, Application US/09585181A
; Patent No. 6358924
; GENERAL INFORMATION:
;  APPLICANT: Hoffmann, James
;  TITLE OF INVENTION: GLP-1 FORMULATIONS
;  FILE REFERENCE: X-11368
;  CURRENT APPLICATION NUMBER: US/09/585,181A
;  CURRENT FILING DATE:  2001-08-22
;  PRIOR APPLICATION NUMBER: US 60/067,600
;  PRIOR FILING DATE: 1997-12-05
;  NUMBER OF SEQ ID NOS: 5
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: AMIDATION
US-09-585-181A-4

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
US-09-209-799D-10
; Sequence 10, Application US/09209799D
; Patent No. 6380357
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/209,799D
;  CURRENT FILING DATE:  1998-12-11
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 10
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-209-799D-10

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 14
US-09-975-905-1
; Sequence 1, Application US/09975905
; Patent No. 6388053
; GENERAL INFORMATION:
;  APPLICANT: Galloway, John  A
;  APPLICANT:  Hoffmann, James A
;  TITLE OF INVENTION: Glucagon-Like Insulinotropic Peptides, Compositions and Meth
;  FILE REFERENCE: X-9332E
;  CURRENT APPLICATION NUMBER: US/09/975,905
;  CURRENT FILING DATE:  2001-10-12
;  PRIOR APPLICATION NUMBER: 09/573,809
;  PRIOR FILING DATE: 2000-05-18
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: The arginine residue at position 30 is modified so as to rep
;   OTHER INFORMATION: the terminal carboxyl group with an amine.
US-09-975-905-1

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 5.6e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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RESULT 15
US-09-505-991-1
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; Sequence 1, Application US/09505991
; Patent No. 6403361
;   GENERAL INFORMATION:
;        APPLICANT: Wagner, Fred W.
;                   Stout, Jay
;                   Henriksen, Dennis
;                   Partridge, Bruce
;                   Manning, Shane
;        TITLE OF INVENTION: Enzymatic Method for Modification of
;                            Recombinant Polypeptides
;        NUMBER OF SEQUENCES: 26
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Merchant & Gould
;             STREET: 3100 No. 6403361west Center
;             CITY: Minneapolis
;             STATE: MN
;             COUNTRY: USA
;             ZIP: 55402
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/505,991
;             FILING DATE: 17-Feb-2000
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: 08/520,485
;             FILING DATE: <Unknown>
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Carter, Charles G.
;             REGISTRATION NUMBER: 35,093
;             REFERENCE/DOCKET NUMBER: 8648.32-USD1
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 612-332-5300
;             TELEFAX: 612-332-9081
;    INFORMATION FOR SEQ ID NO: 1:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 30 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        IMMEDIATE SOURCE:
;             CLONE: GLP1 7-36-NH2  (Glucagon-like Peptide)
;        SEQUENCE DESCRIPTION: SEQ ID NO: 1:
US-09-505-991-1

  Query Match            100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 5.6e-16;
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Job time : 20.6721 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:55:57 ; Search time 42.7869 Seconds
(without alignments)
112.975 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 600653 seqs, 161128416 residues

Total number of hits satisfying chosen parameters: 600653

Minimum DB seq length: 0
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Maximum Match 100%
Listing first 45 summaries

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18: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	9	US-09-851-738-4	Sequence 4, Appli
2	155	100.0	30	9	US-09-805-507-4	Sequence 4, Appli
3	155	100.0	30	10	US-09-859-804-4	Sequence 4, Appli
4	155	100.0	30	10	US-09-982-978-4	Sequence 4, Appli
5	155	100.0	30	10	US-09-953-021B-4	Sequence 4, Appli
6	155	100.0	30	11	US-09-834-229A-5	Sequence 5, Appli
7	155	100.0	30	11	US-09-997-792-10	Sequence 10, Appl
8	155	100.0	30	12	US-10-097-230-3	Sequence 3, Appli
9	155	100.0	30	14	US-10-072-540A-4	Sequence 4, Appli
10	155	100.0	30	14	US-10-125-255-1	Sequence 1, Appli
11	155	100.0	30	15	US-10-091-258-4	Sequence 4, Appli
12	155	100.0	30	15	US-10-055-259-4	Sequence 4, Appli
13	155	100.0	30	15	US-10-265-345A-2	Sequence 2, Appli
14	155	100.0	31	9	US-09-754-723-1	Sequence 1, Appli
15	155	100.0	31	9	US-09-420-785A-3	Sequence 3, Appli
16	155	100.0	31	9	US-09-876-388-2	Sequence 2, Appli
17	155	100.0	31	9	US-09-876-388-17	Sequence 17, Appl
18	155	100.0	31	9	US-09-876-388-27	Sequence 27, Appl
19	155	100.0	31	9	US-09-876-388-28	Sequence 28, Appl
20	155	100.0	31	9	US-09-851-738-3	Sequence 3, Appli
21	155	100.0	31	9	US-09-805-507-3	Sequence 3, Appli
22	155	100.0	31	10	US-09-859-804-3	Sequence 3, Appli
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26	155	100.0	31	11	US-09-997-792-1	Sequence 1, Appli
27	155	100.0	31	12	US-10-097-230-2	Sequence 2, Appli
28	155	100.0	31	14	US-10-072-540A-1	Sequence 1, Appli
29	155	100.0	31	15	US-10-093-958-19	Sequence 19, Appl
30	155	100.0	31	15	US-10-169-657-1	Sequence 1, Appli
31	155	100.0	31	15	US-10-169-657-36	Sequence 36, Appl
32	155	100.0	31	15	US-10-091-258-3	Sequence 3, Appli
33	155	100.0	31	15	US-10-055-259-3	Sequence 3, Appli
34	155	100.0	31	15	US-10-287-892-2	Sequence 2, Appli
35	155	100.0	31	15	US-10-287-892-17	Sequence 17, Appl
36	155	100.0	31	15	US-10-287-892-27	Sequence 27, Appl
37	155	100.0	31	15	US-10-287-892-28	Sequence 28, Appl
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39	155	100.0	31	15	US-10-288-340-17	Sequence 17, Appl
40	155	100.0	31	15	US-10-288-340-27	Sequence 27, Appl
41	155	100.0	31	15	US-10-288-340-28	Sequence 28, Appl
42	155	100.0	31	15	US-10-265-345A-3	Sequence 3, Appli
43	155	100.0	35	11	US-09-943-084-1	Sequence 1, Appli
44	155	100.0	36	9	US-09-851-738-2	Sequence 2, Appli
45	155	100.0	36	9	US-09-805-507-2	Sequence 2, Appli

ALIGNMENTS

RESULT 1
US-09-851-738-4
; Sequence 4, Application US/09851738
; Patent No. US20020055460A1
; GENERAL INFORMATION:
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Ehlers, Mario R.W.
; TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
; TITLE OF INVENTION: Ischemic and Reperfused Tissue
; FILE REFERENCE: P03660US1
; CURRENT APPLICATION NUMBER: US/09/851,738
; CURRENT FILING DATE: 2001-05-09
; PRIOR APPLICATION NUMBER: 09/302,596
; PRIOR FILING DATE: 1999-04-30
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
; LENGTH: 30
; TYPE: PRT
; ORGANISM: mammalian
US-09-851-738-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 3.2e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 2
US-09-805-507-4
; Sequence 4, Application US/09805507
; Patent No. US20020098195A1
; GENERAL INFORMATION:
; APPLICANT: COOLIDGE, THOMAS R.
; APPLICANT: EHLERS, MARIO

; TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
; FILE REFERENCE: 089187/0395
; CURRENT APPLICATION NUMBER: US/09/805,507
; CURRENT FILING DATE: 2001-03-14
; PRIOR APPLICATION NUMBER: 09/859,804
; PRIOR FILING DATE: 2001-05-18
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Unknown Organism
; FEATURE:
; OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
; OTHER INFORMATION: peptide
US-09-805-507-4

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 3.2e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 3
US-09-859-804-4
; Sequence 4, Application US/09859804
; Patent No. US20020107206A1
; GENERAL INFORMATION:
; APPLICANT: COOLIDGE, THOMAS R.
; APPLICANT: EHLERS, MARIO
; TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
; FILE REFERENCE: 089187/0395
; CURRENT APPLICATION NUMBER: US/09/859,804
; CURRENT FILING DATE: 2001-05-18
; PRIOR APPLICATION NUMBER: 60/205,239
; PRIOR FILING DATE: 2000-05-19
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Unknown Organism
; FEATURE:
; OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
; OTHER INFORMATION: peptide
US-09-859-804-4

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Best Local Similarity 100.0%; Pred. No. 3.2e-16;
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RESULT 4
US-09-982-978-4
; Sequence 4, Application US/09982978
; Patent No. US20020146405A1
; GENERAL INFORMATION:
; APPLICANT: COOLIDGE, THOMAS R.
; APPLICANT: EHLERS, MARIO
; TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
; FILE REFERENCE: 089187/0395
; CURRENT APPLICATION NUMBER: US/09/982,978
; CURRENT FILING DATE: 2001-10-22
; PRIOR APPLICATION NUMBER: 09/859,804
; PRIOR FILING DATE: 2001-05-18
; PRIOR APPLICATION NUMBER: 60/205,239
; PRIOR FILING DATE: 2000-05-19
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.1
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; LENGTH: 30
; TYPE: PRT
; ORGANISM: Unknown Organism
; FEATURE:
; OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
; OTHER INFORMATION: peptide
US-09-982-978-4

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Best Local Similarity 100.0%; Pred. No. 3.2e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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RESULT 5
US-09-953-021B-4
; Sequence 4, Application US/09953021B
; Patent No. US20020147131A1
; GENERAL INFORMATION:
; APPLICANT: Coolidge, Thomas L.
; APPLICANT: Ehlers, Mario R.W.
; TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
; TITLE OF INVENTION: Reperfused Skeletal Muscle Tissue
; FILE REFERENCE: P03660US6
; CURRENT APPLICATION NUMBER: US/09/953,021B
; CURRENT FILING DATE: 2001-09-11
; PRIOR APPLICATION NUMBER: 09/302,596
; PRIOR FILING DATE: 1999-04-30
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-953-021B-4

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RESULT 6
US-09-834-229A-5
; Sequence 5, Application US/09834229A
; Publication No. US20030022823A1
; GENERAL INFORMATION:
; APPLICANT: Efendic, Suad
; TITLE OF INVENTION: USE OF GLP-1 OR ANALOGS IN TREATMENT OF MYOCARDIAL INFARCTION
; FILE REFERENCE: X-10822A
; CURRENT APPLICATION NUMBER: US/09/834,229A
; CURRENT FILING DATE: 2001-04-12
; PRIOR APPLICATION NUMBER: US 08/915,918
; PRIOR FILING DATE: 1997-08-21
; PRIOR APPLICATION NUMBER: US 06/024,980
; PRIOR FILING DATE: 1996-08-30
; NUMBER OF SEQ ID NOS: 6
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Artificial Sequence
; FEATURE:

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;   OTHER INFORMATION: synthetic construct
US-09-834-229A-5

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 7
US-09-997-792-10
; Sequence 10, Application US/09997792
; Publication No. US20030045464A1
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/997,792
;  CURRENT FILING DATE:  2001-11-30
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 10
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-997-792-10

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RESULT 8
US-10-097-230-3
; Sequence 3, Application US/10097230
; Publication No. US20030186436A1
; GENERAL INFORMATION:
;  APPLICANT: Perfetti, Riccardo
;  APPLICANT:  Hui, Hongxiang
;  TITLE OF INVENTION: Glucose-Dependent Insulin-Secreting Cells Transfected with a Nucl
;  TITLE OF INVENTION:  Sequence Encoding GLP-1
;  FILE REFERENCE: 81476-0249704
;  CURRENT APPLICATION NUMBER: US/10/097,230
;  CURRENT FILING DATE:  2002-03-12
;  NUMBER OF SEQ ID NOS: 9
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-097-230-3

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  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 9
US-10-072-540A-4
; Sequence 4, Application US/10072540A
; Publication No. US20020123465A1
; GENERAL INFORMATION:
;  APPLICANT: Hoffmann, James
;  TITLE OF INVENTION: GLP-1 FORMULATIONS
;  FILE REFERENCE: X-11368A
;  CURRENT APPLICATION NUMBER: US/10/072,540A
;  CURRENT FILING DATE:  2002-02-08
;  PRIOR APPLICATION NUMBER: US 60/067,600
;  PRIOR FILING DATE: 1997-12-05
;  NUMBER OF SEQ ID NOS: 5
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: AMIDATION
US-10-072-540A-4

  Query Match           100.0%;  Score 155;  DB 14;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
US-10-125-255-1
; Sequence 1, Application US/10125255
; Publication No. US20020165342A1
; GENERAL INFORMATION:
;  APPLICANT: Galloway, John  A
;  APPLICANT:  Hoffmann, James A
;  TITLE OF INVENTION: Glucagon-Like Insulinotropic Peptides, Compositions and Meth
;  FILE REFERENCE: X-9332E
;  CURRENT APPLICATION NUMBER: US/10/125,255
;  CURRENT FILING DATE:  2002-04-17
;  PRIOR APPLICATION NUMBER: 09/573,809
;  PRIOR FILING DATE: 2000-05-18
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: The arginine residue at position 30 is modified so as to rep
;   OTHER INFORMATION: the terminal carboxyl group with an amine.
US-10-125-255-1

  Query Match           100.0%;  Score 155;  DB 14;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
US-10-091-258-4
; Sequence 4, Application US/10091258
; Publication No. US20030073626A1
; GENERAL INFORMATION:
;  APPLICANT: Hathaway, David R
```

```
;  APPLICANT:  Coolidge, Thomas R
;  TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR TREATING PERIPHERAL VASCULAR DISEASE
;  FILE REFERENCE: RGN-2
;  CURRENT APPLICATION NUMBER: US/10/091,258
;  CURRENT FILING DATE:  2002-03-05
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: mammalian
US-10-091-258-4

  Query Match           100.0%;  Score 155;  DB 15;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
US-10-055-259-4
; Sequence 4, Application US/10055259
; Publication No. US20030091507A1
; GENERAL INFORMATION:
;  APPLICANT: Holst, Jens J.
;  APPLICANT:  Vilsboll, Tina
;  TITLE OF INVENTION: GLP-1 AS A DIAGNOSTIC TEST TO DETERMINE Beta-CELL FUNCTION AND TH
;  TITLE OF INVENTION:  PRESENCE OF THE CONDITION OF IGT AND TYPE-II DIABETES
;  FILE REFERENCE: P03987US1
;  CURRENT APPLICATION NUMBER: US/10/055,259
;  CURRENT FILING DATE:  2002-06-21
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-055-259-4

  Query Match           100.0%;  Score 155;  DB 15;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
US-10-265-345A-2
; Sequence 2, Application US/10265345A
; Publication No. US20030124669A1
; GENERAL INFORMATION:
;  APPLICANT: Pan, Clark
;  APPLICANT:  Whelan, James
;  APPLICANT:  Clairmont, Kevin B.
;  TITLE OF INVENTION: Peptides Acting as Both GLP-1 Receptor Agonists and Glucagon
;  TITLE OF INVENTION:  Receptor Antagonists and Their Pharmacological Methods of Use
;  FILE REFERENCE: MSB-7288
;  CURRENT APPLICATION NUMBER: US/10/265,345A
;  CURRENT FILING DATE:  2003-01-31
;  PRIOR APPLICATION NUMBER: US 60/327,730
;  PRIOR FILING DATE: 2001-10-05
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-265-345A-2

  Query Match           100.0%;  Score 155;  DB 15;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 3.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 14
US-09-754-723-1
; Sequence 1, Application US/09754723
; Patent No. US20010002394A1
; GENERAL INFORMATION:
;  APPLICANT: EFENDIC, Suad
;  APPLICANT:  GUTNIAK, Mark
;  APPLICANT:  KIRK, Ole
;  TITLE OF INVENTION: Use Of A Peptide
;  FILE REFERENCE: 3745.234-US
;  CURRENT APPLICATION NUMBER: US/09/754,723
;  CURRENT FILING DATE:  2001-06-21
;  PRIOR APPLICATION NUMBER: US 08/842,121
;  PRIOR FILING DATE: 1997-04-23
;  PRIOR APPLICATION NUMBER: US 08/295,913
;  PRIOR FILING DATE: 1994-10-13
;  PRIOR APPLICATION NUMBER: PCT/DK93/00099
;  PRIOR FILING DATE: 1993-03-19
;  PRIOR APPLICATION NUMBER: DK 0363/92
;  PRIOR FILING DATE: 1992-03-19
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo Sapien
;   FEATURE:
;   NAME/KEY: VARIANT
;   LOCATION: (1)...(31)
;   OTHER INFORMATION: Xaa = Any Amino Acid
US-09-754-723-1

  Query Match           100.0%;  Score 155;  DB 9;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 3.3e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 15
US-09-420-785A-3
; Sequence 3, Application US/09420785A
; Patent No. US20010010923A1
; GENERAL INFORMATION:
;  APPLICANT: MORTENSEN, UFFE
;  APPLICANT:  OLESEN, KJELD
;  APPLICANT:  STENNICKE, HENNING
;  APPLICANT:  SORENSEN, STEEN B.
;  APPLICANT:  BREDDAM, KLAUS
;  TITLE OF INVENTION: MODIFIED CARBOXYPEPTIDASE
;  FILE REFERENCE: 089187/0109
;  CURRENT APPLICATION NUMBER: US/09/420,785A
;  CURRENT FILING DATE:  1999-10-19
;  NUMBER OF SEQ ID NOS: 4
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: VARIANT
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; LOCATION: (31)
; OTHER INFORMATION: C-terminal amino acid which serves as a leaving
; OTHER INFORMATION: group, typically, an uncharged amino acid side
; OTHER INFORMATION: chain, preferably alanine
US-09-420-785A-3

  Query Match 100.0%; Score 155; DB 9; Length 31;
  Best Local Similarity 100.0%; Pred. No. 3.3e-16;
  Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Search completed: October 15, 2003, 11:09:32
Job time : 42.7869 secs

GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:53:17 ; Search time 285.738 Seconds
(without alignments)
95.534 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
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Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 5728757 seqs, 909918778 residues

Total number of hits satisfying chosen parameters: 5728757

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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26: /cgn2_6/ptodata/1/paa/US100_COMB.pep:*
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28: /cgn2_6/ptodata/1/paa/US102_COMB.pep:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	1	PCT-US02-13088-4	Sequence 4, Appli
2	155	100.0	30	1	PCT-US02-24141-1	Sequence 1, Appli
3	155	100.0	30	1	PCT-US02-24141-4	Sequence 4, Appli
4	155	100.0	30	1	PCT-US02-25227-25	Sequence 25, Appl
5	155	100.0	30	1	PCT-US02-31693A-2	Sequence 2, Appli
6	155	100.0	30	1	PCT-US03-16643-31	Sequence 31, Appl
7	155	100.0	30	1	PCT-US03-16645-4	Sequence 4, Appli
8	155	100.0	30	1	PCT-US98-25515-4	Sequence 4, Appli
9	155	100.0	30	3	US-07-899-073-3	Sequence 3, Appli
10	155	100.0	30	4	US-08-044-133-3	Sequence 3, Appli
11	155	100.0	30	7	US-08-302-855-1	Sequence 1, Appli
12	155	100.0	30	7	US-08-350-528-53	Sequence 53, Appl
13	155	100.0	30	7	US-08-350-530A-27	Sequence 27, Appl
14	155	100.0	30	7	US-08-356-231-3	Sequence 3, Appli
15	155	100.0	30	9	US-08-520-485-1	Sequence 1, Appli
16	155	100.0	30	13	US-08-908-867-3	Sequence 3, Appli
17	155	100.0	30	13	US-08-908-867A-3	Sequence 3, Appli
18	155	100.0	30	13	US-08-908-867-3	Sequence 3, Appli
19	155	100.0	30	13	US-08-934-171-53	Sequence 53, Appl
20	155	100.0	30	16	US-09-206-601-1	Sequence 1, Appli
21	155	100.0	30	16	US-09-206-601-18	Sequence 18, Appl
22	155	100.0	30	16	US-09-206-601-21	Sequence 21, Appl
23	155	100.0	30	16	US-09-206-833-1	Sequence 1, Appli
24	155	100.0	30	16	US-09-206-833-3	Sequence 3, Appli
25	155	100.0	30	17	US-09-341-590-118	Sequence 118, App
26	155	100.0	30	18	US-09-400-802A-4	Sequence 4, Appli
27	155	100.0	30	19	US-09-554-531A-3	Sequence 3, Appli
28	155	100.0	30	19	US-09-561-226-3	Sequence 3, Appli
29	155	100.0	30	19	US-09-586-186-5	Sequence 5, Appli
30	155	100.0	30	20	US-09-622-105-3	Sequence 3, Appli
31	155	100.0	30	20	US-09-623-548A-344	Sequence 344, App
32	155	100.0	30	20	US-09-623-548A-355	Sequence 355, App
33	155	100.0	30	20	US-09-635-679C-4	Sequence 4, Appli
34	155	100.0	30	20	US-09-646-433-4	Sequence 4, Appli
35	155	100.0	30	20	US-09-656-121-11	Sequence 11, Appl
36	155	100.0	30	20	US-09-657-276-344	Sequence 344, App
37	155	100.0	30	20	US-09-657-276-355	Sequence 355, App
38	155	100.0	30	20	US-09-671-773A-3	Sequence 3, Appli
39	155	100.0	30	21	US-09-719-410-4	Sequence 4, Appli
40	155	100.0	30	22	US-09-762-538-1	Sequence 1, Appli
41	155	100.0	30	23	US-09-830-323-1	Sequence 1, Appli
42	155	100.0	30	23	US-09-834-229A-5	Sequence 5, Appli
43	155	100.0	30	23	US-09-851-738-4	Sequence 4, Appli
44	155	100.0	30	23	US-09-857-636-1	Sequence 1, Appli
45	155	100.0	30	23	US-09-858-880-2	Sequence 2, Appli

ALIGNMENTS

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RESULT 1
PCT-US02-13088-4
; Sequence 4, Application PC/TUS0213088
; GENERAL INFORMATION:
;  APPLICANT: Restoragen, Inc.
;  TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR TREATING CONDITIONS ASSOCIATED W
;  TITLE OF INVENTION:  RESISTANCE
;  FILE REFERENCE: RGN-3
;  CURRENT APPLICATION NUMBER: PCT/US02/13088
;  CURRENT FILING DATE:  2002-04-24
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: mammalian
PCT-US02-13088-4

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 2
PCT-US02-24141-1
; Sequence 1, Application PC/TUS0224141
; GENERAL INFORMATION:
;  APPLICANT: The Government of the United States of America, as represented by the
;  APPLICANT:  Secretary, Department of Health and Human Services
;  APPLICANT:  Greig, Nigel H.
;  APPLICANT:  Egan, Josephine
;  APPLICANT:  Doyle, Maire
;  APPLICANT:  Holloway, Harold
;  TITLE OF INVENTION: GLP-1, EXENDIN-4, AND PEPTIDE ANALOGS AND USES THEREOF
;  FILE REFERENCE: 14014.0396P1
;  CURRENT APPLICATION NUMBER: PCT/US02/24141
;  CURRENT FILING DATE:  2002-07-30
;  PRIOR APPLICATION NUMBER: 60/309,076
;  PRIOR FILING DATE: 2001-07-31
;  NUMBER OF SEQ ID NOS: 52
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Human
PCT-US02-24141-1

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 3
PCT-US02-24141-4
; Sequence 4, Application PC/TUS0224141
; GENERAL INFORMATION:
;  APPLICANT: The Government of the United States of America, as represented by the
;  APPLICANT:  Secretary, Department of Health and Human Services
;  APPLICANT:  Greig, Nigel H.
;  APPLICANT:  Egan, Josephine
;  APPLICANT:  Doyle, Maire
;  APPLICANT:  Holloway, Harold
;  TITLE OF INVENTION: GLP-1, EXENDIN-4, AND PEPTIDE ANALOGS AND USES THEREOF
;  FILE REFERENCE: 14014.0396P1
;  CURRENT APPLICATION NUMBER: PCT/US02/24141
;  CURRENT FILING DATE:  2002-07-30
;  PRIOR APPLICATION NUMBER: 60/309,076
;  PRIOR FILING DATE: 2001-07-31
;  NUMBER OF SEQ ID NOS: 52
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:/Note =
;   OTHER INFORMATION: Synthetic Construct
PCT-US02-24141-4

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 4
PCT-US02-25227-25
; Sequence 25, Application PC/TUS0225227
; GENERAL INFORMATION:
;  APPLICANT: Genzyme Corporation
;  APPLICANT:  Wadsworth, Samuel C.
;  APPLICANT:  Armentano, Donna
;  APPLICANT:  Gregory, Richard J.
;  APPLICANT:  Parsons, Geoffrey
;  TITLE OF INVENTION: Methods of Treating Diabetes and Other
;  TITLE OF INVENTION:  Blood Sugar Disorders
;  FILE REFERENCE: 2478.2019002 PCT
;  CURRENT APPLICATION NUMBER: PCT/US02/25227
;  CURRENT FILING DATE:  2002-08-07
;  PRIOR APPLICATION NUMBER: US 60/310,982
;  PRIOR FILING DATE: 2001-08-08
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: PastSEQ for Windows Version 4.0
; SEQ ID NO 25
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Modified GLP-1 molecule; GLP-1 (7-36)
PCT-US02-25227-25

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 5
PCT-US02-31693A-2
; Sequence 2, Application PC/TUS0231693A
; GENERAL INFORMATION:
;  APPLICANT: Bayer Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  APPLICANT:  Clairmont, Kevin B.
;  TITLE OF INVENTION: Peptides Acting as Both GLP-1 Receptor Agonists and Glucagon
;  TITLE OF INVENTION:  Receptor Antagonists and Their Pharmacological Methods of Us
;  FILE REFERENCE: MSB-7288-PCT
;  CURRENT APPLICATION NUMBER: PCT/US02/31693A
;  CURRENT FILING DATE:  2002-12-19
;  PRIOR APPLICATION NUMBER: US 60/327,730
;  PRIOR FILING DATE: 2001-10-05
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US02-31693A-2

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
PCT-US03-16643-31
; Sequence 31, Application PC/TUS0316643
; GENERAL INFORMATION:
;  APPLICANT: Wagner, F.
;  APPLICANT:  Peng, L.
;  APPLICANT:  Xia, U.
```

```
;  APPLICANT:  Holmquist, B.
;  TITLE OF INVENTION: Methods and DNA Constructs for High Yield Production of Polypepti
;  FILE REFERENCE: 1627.010WO1
;  CURRENT APPLICATION NUMBER: PCT/US03/16643
;  CURRENT FILING DATE:  2003-05-23
;  PRIOR APPLICATION NUMBER: US 60/383,370
;  PRIOR FILING DATE: 2002-05-24
;  NUMBER OF SEQ ID NOS: 148
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 31
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-36).
PCT-US03-16643-31

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 7
PCT-US03-16645-4
; Sequence 4, Application PC/TUS0316645
; GENERAL INFORMATION:
;  APPLICANT: Wagner, F.
;  APPLICANT:  Peng, L.
;  APPLICANT:  Xia, U.
;  APPLICANT:  Holmquist, B.
;  TITLE OF INVENTION: Methods and DNA Constructs for High Yield Production of Polypepti
;  FILE REFERENCE: 1627.009WO1
;  CURRENT APPLICATION NUMBER: PCT/US03/16645
;  CURRENT FILING DATE:  2003-05-23
;  PRIOR APPLICATION NUMBER: US 60/383,212
;  PRIOR FILING DATE: 2002-05-24
;  NUMBER OF SEQ ID NOS: 93
;  SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-36).
PCT-US03-16645-4

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 8
PCT-US98-25515-4
; Sequence 4, Application PC/TUS9825515
; GENERAL INFORMATION:
;  APPLICANT: Hoffmann, James A.
;  TITLE OF INVENTION: GLP-1 FORMULATIONS
;  FILE REFERENCE: X-11368
;  CURRENT APPLICATION NUMBER: PCT/US98/25515
;  CURRENT FILING DATE: 1998-12-02
;  EARLIER APPLICATION NUMBER: US60/067,600
;  EARLIER FILING DATE: 1997-12-05
;  NUMBER OF SEQ ID NOS: 5
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   OTHER INFORMATION: Arg at position 30 is C-terminally amidated.
PCT-US98-25515-4

  Query Match           100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 9
US-07-899-073-3
; Sequence 3, Application US/07899073
;  GENERAL INFORMATION:
;    APPLICANT:  Andrews, Glenn C.
;    APPLICANT:  Daumy, Gaston O.
;    APPLICANT:  Francoeur, Michael L.
;    APPLICANT:  Larson, Eric R.
;    TITLE OF INVENTION:  GLUCAGON-LIKE PEPTIDE AND INSULINOTROPIN
;    TITLE OF INVENTION:  DERIVATIVES
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Gregg C. Benson, Pfizer Inc
;      STREET:  Eastern Point Road
;      CITY:  Groton
;      STATE:  CT
;      COUNTRY:  USA
;      ZIP:  06340
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/07/899,073
;      FILING DATE:  19920615
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Benson, Gregg C.
;      REGISTRATION NUMBER:  30,997
;      REFERENCE/DOCKET NUMBER:  PC8156GCB
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203) 441-4901
;      TELEFAX:  (203) 441-5221
; INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  AMINO ACID
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-07-899-073-3

  Query Match           100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
US-08-044-133-3
; Sequence 3, Application US/08044133
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
```

```
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/044,133
;      FILING DATE:  07-APR-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
;      UNITS:  N/A
US-08-044-133-3

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
US-08-302-855-1
; Sequence 1, Application US/08302855
;  GENERAL INFORMATION:
;    APPLICANT:  Kirk, Ole
;    APPLICANT:  Pridal, Lone
;    TITLE OF INVENTION:  NOVEL MEDICAMENT
;    NUMBER OF SEQUENCES:  1
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Novo Nordisk of North America, Inc.
;      STREET:  405 Lexington Avenue, 64th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  United States of America
;      ZIP:  10174-6401
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/302,855
;      FILING DATE:  16-SEP-1994
;      CLASSIFICATION:  530
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  DK PCT/DK93/00098
;      FILING DATE:  18-MAR-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Lambiris, Elias J.
;      REGISTRATION NUMBER:  33,728
;      REFERENCE/DOCKET NUMBER:  3746.204-US
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  212-867-0123
;      TELEFAX:  212-878-9655
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-302-855-1

  Query Match             100.0%;  Score 155;  DB 7;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
US-08-350-528-53
; Sequence 53, Application US/08350528
;  GENERAL INFORMATION:
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Holmquist, Barton
;    APPLICANT:  Wagner, Fred
;    TITLE OF INVENTION:  PRODUCTION OF C-TERMINAL AMIDATED PEPTIDES FROM RECOMB
;    NUMBER OF SEQUENCES:  63
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 Norwest
;      CITY:  Mpls
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ Version 1.5
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/350,528
;      FILING DATE:  07-DEC-1994
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
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;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.43US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  332-5300
;      TELEFAX:
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  53:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  internal
;    ORIGINAL SOURCE:
US-08-350-528-53

  Query Match           100.0%;  Score 155;  DB 7;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
US-08-350-530A-27
; Sequence 27, Application US/08350530A
;  GENERAL INFORMATION:
;    APPLICANT:  Patridge, Bruce
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Manning, Shane
;    APPLICANT:  De La Motta, Rebecca
;    APPLICANT:  Holmquist, Barton
;    APPLICANT:  Wagner, Fred
;    TITLE OF INVENTION:  PRODUCTION OF PEPTIDE USING RECOMBINANT
;    TITLE OF INVENTION:  FUSION PROTEIN CONSTRUCTS
;    NUMBER OF SEQUENCES:  33
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 Norwest Center, 90 S. 7th Street
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  U.S.A.
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Diskette
;      COMPUTER:  IBM Compatible
;      OPERATING SYSTEM:  DOS
;      SOFTWARE:  FastSEQ Version 1.5
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/350,530A
;      FILING DATE:  07-DEC-1994
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.45US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612/332-5300
;      TELEFAX:  612/332-9081
;      TELEX:
;  INFORMATION FOR SEQ ID NO:  27:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  internal
;    ORIGINAL SOURCE:
US-08-350-530A-27

  Query Match           100.0%;  Score 155;  DB 7;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 14
US-08-356-231-3
; Sequence 3, Application US/08356231
;  GENERAL INFORMATION:
;    APPLICANT:  Andrews, Glenn C.
;    APPLICANT:  Daumy, Gaston O.
;    APPLICANT:  Francoeur, Michael L.
;    APPLICANT:  Larson, Eric R.
;    APPLICANT:  Pfizer Inc, (Non-US)
;    TITLE OF INVENTION:  GLUCAGON-LIKE PEPTIDE AND INSULINOTROPIN
;    TITLE OF INVENTION:  DERIVATIVES
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Gregg C. Benson, Pfizer Inc
;      STREET:  Eastern Point Road
;      CITY:  Groton
;      STATE:  CT
;      COUNTRY:  USA
;      ZIP:  06340
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/356,231
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 07/899,073
;      FILING DATE:  15-JUN-1992
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Benson, Gregg C.
;      REGISTRATION NUMBER:  30,997
;      REFERENCE/DOCKET NUMBER:  PC8156AGCB
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (203) 441-4901
;      TELEFAX:  (203) 441-5221
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-356-231-3

  Query Match           100.0%;  Score 155;  DB 7;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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RESULT 15
US-08-520-485-1
; Sequence 1, Application US/08520485
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 Norwest Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/520,485
;      FILING DATE:  29-AUG-1995
;      CLASSIFICATION:  435
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G.
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.32-USD1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-520-485-1

  Query Match           100.0%;  Score 155;  DB 9;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


Search completed: October 15, 2003, 11:07:21
Job time : 286.738 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:53:47 ; Search time 14.7541 Seconds
(without alignments)
62.284 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 148013 seqs, 30631251 residues

Total number of hits satisfying chosen parameters: 148013

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Pending_Patents_AA_New:*
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2: /cgn2_6/ptodata/1/paa/US06_NEW_COMB.pep:*
3: /cgn2_6/ptodata/1/paa/US07_NEW_COMB.pep:*
4: /cgn2_6/ptodata/1/paa/US08_NEW_COMB.pep:*
5: /cgn2_6/ptodata/1/paa/US09_NEW_COMB.pep:*
6: /cgn2_6/ptodata/1/paa/US10_NEW_COMB.pep:*
7: /cgn2_6/ptodata/1/paa/US60_NEW_COMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	1	PCT-US03-26778-14	Sequence 14, Appl
2	155	100.0	30	1	PCT-US03-26818-48	Sequence 48, Appl
3	155	100.0	30	1	PCT-US03-28093-1	Sequence 1, Appli
4	155	100.0	30	5	US-09-341-590A-118	Sequence 118, App
5	155	100.0	30	6	US-10-291-226-114	Sequence 114, App
6	155	100.0	30	6	US-10-656-405-1	Sequence 1, Appli
7	155	100.0	30	6	US-10-671-340-1	Sequence 1, Appli
8	155	100.0	31	1	PCT-US03-15395B-16	Sequence 16, Appl
9	155	100.0	31	1	PCT-US03-26779-34	Sequence 34, Appl
10	155	100.0	31	1	PCT-US03-26778-6	Sequence 6, Appli
11	155	100.0	31	1	PCT-US03-26818-6	Sequence 6, Appli
12	155	100.0	31	1	PCT-US03-26818-64	Sequence 64, Appl
13	155	100.0	31	1	PCT-US03-28093-2	Sequence 2, Appli
14	155	100.0	31	6	US-10-291-226-124	Sequence 124, App
15	155	100.0	31	6	US-10-656-405-2	Sequence 2, Appli
16	155	100.0	31	7	US-60-485-404-34	Sequence 34, Appl
17	155	100.0	32	1	PCT-US03-28093-27	Sequence 27, Appl
18	155	100.0	32	1	PCT-US03-28093-30	Sequence 30, Appl
19	155	100.0	32	6	US-10-656-405-27	Sequence 27, Appl
20	155	100.0	32	6	US-10-656-405-30	Sequence 30, Appl
21	155	100.0	36	5	US-09-341-590A-92	Sequence 92, Appl
22	152	98.1	36	6	US-10-291-226-115	Sequence 115, App
23	151	97.4	30	6	US-10-291-226-87	Sequence 87, Appl
24	151	97.4	30	6	US-10-291-226-112	Sequence 112, App
25	151	97.4	30	6	US-10-291-226-113	Sequence 113, App
26	151	97.4	31	6	US-10-291-226-111	Sequence 111, App
27	151	97.4	31	6	US-10-291-226-123	Sequence 123, App
28	151	97.4	32	1	PCT-US03-28093-28	Sequence 28, Appl
29	151	97.4	32	6	US-10-291-226-147	Sequence 147, App
30	151	97.4	32	6	US-10-656-405-28	Sequence 28, Appl
31	151	97.4	36	6	US-10-291-226-88	Sequence 88, Appl
32	151	97.4	36	6	US-10-291-226-90	Sequence 90, Appl
33	151	97.4	36	6	US-10-291-226-103	Sequence 103, App
34	151	97.4	36	6	US-10-291-226-116	Sequence 116, App
35	151	97.4	36	6	US-10-291-226-119	Sequence 119, App
36	151	97.4	37	6	US-10-291-226-117	Sequence 117, App
37	151	97.4	37	6	US-10-291-226-122	Sequence 122, App
38	151	97.4	37	6	US-10-291-226-153	Sequence 153, App
39	151	97.4	38	6	US-10-291-226-89	Sequence 89, Appl
40	151	97.4	38	6	US-10-291-226-120	Sequence 120, App
41	151	97.4	40	6	US-10-291-226-121	Sequence 121, App
42	151	97.4	42	6	US-10-291-226-118	Sequence 118, App
43	150	96.8	29	1	PCT-US03-26778-8	Sequence 8, Appli
44	150	96.8	29	1	PCT-US03-26818-8	Sequence 8, Appli
45	150	96.8	45	1	PCT-US03-15395B-7	Sequence 7, Appli

ALIGNMENTS

RESULT 1
PCT-US03-26778-14
; Sequence 14, Application PC/TUS0326778
; GENERAL INFORMATION:
; APPLICANT: PRIOR, Christopher P.
; APPLICANT: SADEGHI, Homayoun
; APPLICANT: TURNER, Andrew J.
; TITLE OF INVENTION: ORAL DELIVERY OF MODIFIED TRANSFERRIN FUSION PROTEINS
; FILE REFERENCE: 54710-5006-WO
; CURRENT APPLICATION NUMBER: PCT/US03/26778
; CURRENT FILING DATE: 2003-08-28
; PRIOR APPLICATION NUMBER: US 60/406,977
; PRIOR FILING DATE: 2002-08-30
; PRIOR APPLICATION NUMBER: US 10/378,094
; PRIOR FILING DATE: 2003-03-04
; PRIOR APPLICATION NUMBER: US 60/460,829
; PRIOR FILING DATE: 2003-04-08
; NUMBER OF SEQ ID NOS: 54
; SOFTWARE: PatentIn version 3.2
; SEQ ID NO 14
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Artificial sequence
; FEATURE:
; OTHER INFORMATION: glucagon-like peptide-1
PCT-US03-26778-14

Query Match 100.0%; Score 155; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.5e-14;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 2
PCT-US03-26818-48
; Sequence 48, Application PC/TUS0326818
; GENERAL INFORMATION:
; APPLICANT: PRIOR, Christopher P.
; APPLICANT: LAI, Char-Huei
; APPLICANT: SADEGHI, Homayoun
; APPLICANT: TURNER, Andrew J.
; TITLE OF INVENTION: MODIFIED TRANSFERRIN FUSION PROTEINS
; FILE REFERENCE: 54710-5001-01-WO
; CURRENT APPLICATION NUMBER: PCT/US03/26818
; CURRENT FILING DATE: 2003-08-28
; PRIOR APPLICATION NUMBER: US 60/406,977

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;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  NUMBER OF SEQ ID NOS: 90
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 48
;    LENGTH: 30
;    TYPE: PRT
;    ORGANISM: Artificial sequence
;    FEATURE:
;    OTHER INFORMATION: glucagon-like peptide-1
PCT-US03-26818-48

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 3
PCT-US03-28093-1
; Sequence 1, Application PC/TUS0328093
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: PCT/US03/28093
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 1
;    LENGTH: 30
;    TYPE: PRT
;    ORGANISM: Homo sapiens
PCT-US03-28093-1

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 4
US-09-341-590A-118
; Sequence 118, Application US/09341590A
; GENERAL INFORMATION:
;  APPLICANT: LARSEN, BJARNE DUE
;  TITLE OF INVENTION: PHARMACOLOGICALLY ACTIVE PEPTIDE CONJUGATES HAVING A
;  TITLE OF INVENTION:  REDUCED TENDENCY TOWARDS ENZYMATIC HYDROLYSIS
;  FILE REFERENCE: 55508(45487)
;  CURRENT APPLICATION NUMBER: US/09/341,590A
;  CURRENT FILING DATE:  1999-07-12
;  PRIOR APPLICATION NUMBER: DK 0317/98
;  PRIOR FILING DATE: 1998-03-09
;  NUMBER OF SEQ ID NOS: 122
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 118
;    LENGTH: 30
;    TYPE: PRT
;    ORGANISM: Homo sapiens
;    FEATURE:
;    OTHER INFORMATION: GLP-1-(7-36)
US-09-341-590A-118

  Query Match             100.0%;  Score 155;  DB 5;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 5
US-10-291-226-114
; Sequence 114, Application US/10291226
; GENERAL INFORMATION:
;  APPLICANT: Larsen, Bjarne Due
;  APPLICANT:  Mikkelsen, Jens Mollgaard
;  APPLICANT:  Neve, Soren
;  TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
;  FILE REFERENCE: 55511(45487)
;  CURRENT APPLICATION NUMBER: US/10/291,226
;  CURRENT FILING DATE:  2002-11-08
;  PRIOR APPLICATION NUMBER: US/09/614,847
;  PRIOR FILING DATE: 12000-07-12
;  PRIOR APPLICATION NUMBER: US 60/143,591
;  PRIOR FILING DATE: 1999-07-13
;  NUMBER OF SEQ ID NOS: 153
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 114
;    LENGTH: 30
;    TYPE: PRT
;    ORGANISM: Homo sapiens
;    FEATURE:
;    OTHER INFORMATION: GLP-1(7-36)
US-10-291-226-114

  Query Match             100.0%;  Score 155;  DB 6;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
US-10-656-405-1
; Sequence 1, Application US/10656405
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: US/10/656,405
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 1
;    LENGTH: 30
;    TYPE: PRT
;    ORGANISM: Homo sapiens
US-10-656-405-1

  Query Match             100.0%;  Score 155;  DB 6;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-14;
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```
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 7
US-10-671-340-1
; Sequence 1, Application US/10671340
; GENERAL INFORMATION:
;  APPLICANT: GRAVEL, DENIS
;  APPLICANT:  PERI, KRISHNA
;  APPLICANT:  ABRIBAT, THIERRY
;  APPLICANT:  HABI, ABDELKRIM
;  TITLE OF INVENTION: MODIFIED GLP-1 PEPTIDES WITH INCREASED BIOLOGICAL
;  TITLE OF INVENTION:  POTENCY
;  FILE REFERENCE: GOUD:038US
;  CURRENT APPLICATION NUMBER: US/10/671,340
;  CURRENT FILING DATE:  2003-09-25
;  PRIOR APPLICATION NUMBER: 60/413,171
;  PRIOR FILING DATE: 2002-09-25
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence:  Synthetic
;   OTHER INFORMATION: Peptide
US-10-671-340-1

  Query Match            100.0%;  Score 155;  DB 6;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.5e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 8
PCT-US03-15395B-16
; Sequence 16, Application PC/TUS0315395B
; GENERAL INFORMATION:
;  APPLICANT: Eli Lilly and Company
;  TITLE OF INVENTION: MODIFIED GLUCAGON-LIKE PEPTIDE-1 ANALOGS
;  FILE REFERENCE: X-15642
;  CURRENT APPLICATION NUMBER: PCT/US03/15395B
;  CURRENT FILING DATE:  2003-06-02
;  NUMBER OF SEQ ID NOS: 24
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 16
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: Synthetic construct
PCT-US03-15395B-16

  Query Match            100.0%;  Score 155;  DB 1;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 9
PCT-US03-26779-34
; Sequence 34, Application PC/TUS0326779
; GENERAL INFORMATION:
;  APPLICANT: Prior, Christopher P.
;  APPLICANT:  Turner, Andrew J.
;  APPLICANT:  Sadeghi, Homayoun
;  TITLE OF INVENTION: Transferrin Fusion Protein Libraries
;  FILE REFERENCE: 054710-5007-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26779
;  CURRENT FILING DATE:  2003-08-26
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/384,060
;  PRIOR FILING DATE: 2003-03-10
;  PRIOR APPLICATION NUMBER: US 60/485,404
;  PRIOR FILING DATE: 2003-07-09
;  NUMBER OF SEQ ID NOS: 75
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 34
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   LOCATION: (1)..(31)
;   OTHER INFORMATION: Xaa = Gly or -NH2, amino acids 7-36/37 of GLP-1
PCT-US03-26779-34

  Query Match            100.0%;  Score 155;  DB 1;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
PCT-US03-26778-6
; Sequence 6, Application PC/TUS0326778
; GENERAL INFORMATION:
;  APPLICANT: PRIOR, Christopher P.
;  APPLICANT:  SADEGHI, Homayoun
;  APPLICANT:  TURNER, Andrew J.
;  TITLE OF INVENTION: ORAL DELIVERY OF MODIFIED TRANSFERRIN FUSION PROTEINS
;  FILE REFERENCE: 54710-5006-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26778
;  CURRENT FILING DATE:  2003-08-28
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  PRIOR APPLICATION NUMBER: US 60/460,829
;  PRIOR FILING DATE: 2003-04-08
;  NUMBER OF SEQ ID NOS: 54
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 6
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   OTHER INFORMATION: Glucagon-Like Peptide
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (31)..(31)
;   OTHER INFORMATION: Xaa can be any naturally occurring amino acid
PCT-US03-26778-6

  Query Match            100.0%;  Score 155;  DB 1;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
```

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Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
PCT-US03-26818-6
; Sequence 6, Application PC/TUS0326818
; GENERAL INFORMATION:
;  APPLICANT: PRIOR, Christopher P.
;  APPLICANT:  LAI, Char-Huei
;  APPLICANT:  SADEGHI, Homayoun
;  APPLICANT:  TURNER, Andrew J.
;  TITLE OF INVENTION: MODIFIED TRANSFERRIN FUSION PROTEINS
;  FILE REFERENCE: 54710-5001-01-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26818
;  CURRENT FILING DATE:  2003-08-28
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  NUMBER OF SEQ ID NOS: 90
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 6
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   OTHER INFORMATION: Glucagon-Like Peptide
;   FEATURE:
;   NAME/KEY: misc_feature
;   LOCATION: (31)..(31)
;   OTHER INFORMATION: Xaa can be any naturally occurring amino acid
;   FEATURE:
;   NAME/KEY: MISC_FEATURE
;   LOCATION: (37)..(37)
;   OTHER INFORMATION: Xaa can be Gly in GLP-1 or NH2 in GLP-2
PCT-US03-26818-6

  Query Match           100.0%;  Score 155;  DB 1;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
PCT-US03-26818-64
; Sequence 64, Application PC/TUS0326818
; GENERAL INFORMATION:
;  APPLICANT: PRIOR, Christopher P.
;  APPLICANT:  LAI, Char-Huei
;  APPLICANT:  SADEGHI, Homayoun
;  APPLICANT:  TURNER, Andrew J.
;  TITLE OF INVENTION: MODIFIED TRANSFERRIN FUSION PROTEINS
;  FILE REFERENCE: 54710-5001-01-WO
;  CURRENT APPLICATION NUMBER: PCT/US03/26818
;  CURRENT FILING DATE:  2003-08-28
;  PRIOR APPLICATION NUMBER: US 60/406,977
;  PRIOR FILING DATE: 2002-08-30
;  PRIOR APPLICATION NUMBER: US 10/378,094
;  PRIOR FILING DATE: 2003-03-04
;  NUMBER OF SEQ ID NOS: 90
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 64
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial sequence
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37) amino acid sequence
PCT-US03-26818-64

  Query Match           100.0%;  Score 155;  DB 1;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
PCT-US03-28093-2
; Sequence 2, Application PC/TUS0328093
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: PCT/US03/28093
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
PCT-US03-28093-2

  Query Match           100.0%;  Score 155;  DB 1;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 14
US-10-291-226-124
; Sequence 124, Application US/10291226
; GENERAL INFORMATION:
;  APPLICANT: Larsen, Bjarne Due
;  APPLICANT:  Mikkelsen, Jens Mollgaard
;  APPLICANT:  Neve, Soren
;  TITLE OF INVENTION: NOVEL PEPTIDE AGONISTS OF GLP-1 ACTIVITY
;  FILE REFERENCE: 55511(45487)
;  CURRENT APPLICATION NUMBER: US/10/291,226
;  CURRENT FILING DATE:  2002-11-08
;  PRIOR APPLICATION NUMBER: US/09/614,847
;  PRIOR FILING DATE: 12000-07-12
;  PRIOR APPLICATION NUMBER: US 60/143,591
;  PRIOR FILING DATE: 1999-07-13
;  NUMBER OF SEQ ID NOS: 153
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 124
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   OTHER INFORMATION: GLP-1(7-37)
US-10-291-226-124

  Query Match           100.0%;  Score 155;  DB 6;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
```

```
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 15
US-10-656-405-2
; Sequence 2, Application US/10656405
; GENERAL INFORMATION:
;  APPLICANT: Bayer Pharmaceuticals Corporation
;  APPLICANT:  Pan, Clark
;  APPLICANT:  Whelan, James
;  TITLE OF INVENTION: Modified GLP-1 Receptor Agonists and Their Pharmacological
;  TITLE OF INVENTION:  Methods of Use
;  FILE REFERENCE: MSB-7296
;  CURRENT APPLICATION NUMBER: US/10/656,405
;  CURRENT FILING DATE:  2003-09-04
;  PRIOR APPLICATION NUMBER: US 60/408,696
;  PRIOR FILING DATE: 2002-09-16
;  PRIOR APPLICATION NUMBER: US 60/439,369
;  PRIOR FILING DATE: 2003-01-09
;  NUMBER OF SEQ ID NOS: 34
;  SOFTWARE: PatentIn version 3.2
; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-10-656-405-2

  Query Match             100.0%;  Score 155;  DB 6;  Length 31;
  Best Local Similarity   100.0%;  Pred. No. 1.6e-14;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


Search completed: October 15, 2003, 11:07:58
Job time : 14.7541 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:49:12 ; Search time 24.5902 Seconds
(without alignments)
117.326 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283308 seqs, 96168682 residues

Total number of hits satisfying chosen parameters: 283308

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_76:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	158	1	GCPG	glucagon precursor
2	155	100.0	180	1	GCHU	glucagon precursor
3	155	100.0	180	1	GCGP	glucagon precursor
4	155	100.0	180	1	GCRTDU	glucagon precursor
5	155	100.0	180	1	GCRT	glucagon precursor
6	155	100.0	180	1	GCHY	glucagon precursor
7	155	100.0	180	1	GCBO	glucagon precursor
8	155	100.0	180	2	A57294	glucagon precursor
9	143	92.3	151	1	GCCH	glucagon precursor
10	143	92.3	206	2	I51301	proglucagon - chic
11	129	83.2	101	1	GCFGB	glucagon precursor
12	126	81.3	30	2	B61125	glucagon-like pept
13	126	81.3	30	2	C61125	glucagon-like pept
14	120	77.4	122	1	GCAF2	glucagon 2 precurs
15	118	76.1	66	2	I51093	glucagon - chincok
16	118	76.1	178	2	I51058	glucagon I precurs
17	117	75.5	63	1	GCIDC	glucagon precursor
18	116	74.8	72	1	GCGXA	glucagon precursor
19	113	72.9	60	1	GCONC	glucagon precursor
20	113	72.9	178	2	I51057	glucagon II precur
21	111	71.6	30	2	S44473	glucagon-like pept
22	103	66.5	87	1	GCFIS	glucagon precursor
23	97	62.6	29	2	S07211	glucagon - marbled
24	96	61.9	31	2	S44472	glucagon G2 - Nort
25	96	61.9	124	1	GCAF	glucagon 1 precurs
26	95	61.3	29	1	GCDF	glucagon - smaller
27	94	60.6	31	2	S44471	glucagon G1 - Nort
28	93	60.0	29	1	GCEN	glucagon - elephan
29	90	58.1	29	1	GCOPV	glucagon - North A
30	90	58.1	29	2	A91740	glucagon - turkey
31	90	58.1	29	2	A91741	glucagon - rabbit
32	90	58.1	29	2	A91742	glucagon - Arabian
33	90	58.1	29	2	C39258	glucagon - common
34	90	58.1	69	1	GCDG69	glucagon-69 - dog
35	88	56.8	29	1	GCDK	glucagon - duck
36	88	56.8	29	1	A61583	glucagon - ostrich
37	88	56.8	29	1	GCTTS	glucagon - slider
38	88	56.8	29	2	C60840	glucagon I - Europ
39	87	56.1	29	1	GCCB	glucagon - Chinchi
40	87	56.1	39	1	HWGH4G	exendin-4 - Gila m
41	86	55.5	29	1	GCFLE	glucagon - Europea
42	86	55.5	29	2	A61135	glucagon - bigeye
43	85	54.8	39	1	HWGH3Z	exendin-3 - Mexica
44	83	53.5	29	2	S39018	glucagon - bowfin
45	79	51.0	36	1	GCFI	glucagon-36 - spot

ALIGNMENTS

RESULT 1
GCPG
glucagon precursor - pig (fragment)
N;Alternate names: glicentin; oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucac
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 17-Dec-1982 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: A01540; A60312; A91781; B32614; A28064
R;Thim, L.; Moody, A.J.
Regul. Pept. 2, 139-150, 1981
A;Title: The primary structure of porcine glicentin (proglucagon).
A;Reference number: A94233; MUID:81248172; PMID:6894800
A;Accession: A01540
A;Molecule type: protein
A;Residues: 1-69 <TH1>
R;Thim, L.; Moody, A.J.
Regul. Pept. Suppl. 2, S33, 1983
A;Title: Primary structure of a possible porcine proglucagon fragment.
A;Reference number: A60312
A;Accession: A60312
A;Molecule type: protein
A;Residues: 1-30 <TH2>
A;Note: this peptide is co-secreted with glucagon from the pancreas
R;Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
A;Title: The amino acid sequence of glucagon. V. Location of amide groups, acid deg
A;Reference number: A91781
A;Accession: A91781
A;Molecule type: protein
A;Residues: 33-61 <BRO>
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small inte
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: B32614
A;Molecule type: protein
A;Residues: 78-107 <ORS>
R;Buhl, T.; Thim, L.; Kofod, H.; Orskov, C.; Harling, H.; Holst, J.J.
J. Biol. Chem. 263, 8621-8624, 1988
A;Title: Naturally occurring products of proglucagon 111-160 in the porcine and huma
A;Reference number: A28064; MUID:88243712; PMID:3379036
A;Accession: A28064
A;Molecule type: protein
A;Residues: 111-158 <BUH>
C;Comment: X's represent missing amino acids, mostly basic, that are predicted to ex
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; in
F;1-69/Product: glucagon-69 #status experimental <G69>
F;1-30/Region: glicentin-related peptide #status experimental
F;33-69/Product: glucagon-37 #status predicted <G37>
F;33-61/Product: glucagon #status experimental <GCN>
F;78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

F;126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F;107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 158;
Best Local Similarity 100.0%; Pred. No. 5.5e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 78 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 107

RESULT 2
GCHU
glucagon precursor [validated] - human
N;Contains: glicentin; glicentin-related polypeptide (GRPP); glucagon; glucagon-like pep
ke peptide 1 (tGLP1)
C;Species: Homo sapiens (man)
C;Date: 24-Apr-1984 #sequence_revision 31-Mar-1993 #text_change 08-Dec-2000
C;Accession: A24377; A44197; A30875; A32614; A01541; S23309
R;White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986
A;Title: Structure of the human glucagon gene.
A;Reference number: A24377; MUID:86259053; PMID:3725587
A;Accession: A24377
A;Molecule type: DNA
A;Residues: 1-180 <WHI>
A;Cross-references: GB:X03991
R;Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
Nature 304, 368-371, 1983
A;Title: Exon duplication and divergence in the human preproglucagon gene.
A;Reference number: A44197; MUID:83271477; PMID:6877358
A;Accession: A44197
A;Molecule type: DNA
A;Residues: 1-179 <BEL>
A;Cross-references: GB:V01515; NID:g31777; PIDN:CAA24759.1; PID:g31778
R;Drucker, D.J.; Asa, S.
J. Biol. Chem. 263, 13475-13478, 1988
A;Title: Glucagon gene expression in vertebrate brain.
A;Reference number: A30875; MUID:88330860; PMID:2901414
A;Accession: A30875
A;Molecule type: mRNA
A;Residues: 1-180 <DRU>
A;Cross-references: GB:J04040; NID:g183269; PIDN:AAA52567.1; PID:g183270
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestin
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: A32614
A;Molecule type: protein
A;Residues: 98-127 <ORS>
R;Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972
A;Title: The amino acid sequence of human glucagon.
A;Reference number: A91373
A;Accession: A01541
A;Molecule type: protein
A;Residues: 53-81 <THO>
R;Tsugita, A.; Takamoto, K.; Kamo, M.; Iwadate, H.
Eur. J. Biochem. 206, 691-696, 1992
A;Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis
A;Reference number: S23188; MUID:92298996; PMID:1606956
A;Accession: S23309
A;Molecule type: protein
A;Residues: 53-81 <TSU>
C;Comment: In pancreatic alpha-cells, proglucagon is processed to glicentin-related poly
stinal L cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon-
dulin.
C;Genetics:
A;Gene: GDB:GCG
A;Cross-references: GDB:119265; OMIM:138030
A;Map position: 2q36-2q37
A;Introns: 31/2; 85/2; 131/2; 179/2

C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; in
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status experimental <PGC>
F;21-89/Product: glicentin #status experimental <GLN>
F;21-50/Product: glicentin-related polypeptide #status predicted <GRPP>
F;53-89/Product: oxyntomodulin #status experimental <OXN>
F;53-81/Product: glucagon #status experimental <GCN>
F;92-178/Product: major proglucagon fragment #status experimental <MPGF>
F;92-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followin

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 3
GCGP
glucagon precursor - guinea pig
N;Alternate names: oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucag
C;Species: Cavia porcellus (guinea pig)
C;Date: 30-Sep-1987 #sequence_revision 31-Dec-1992 #text_change 16-Jun-2000
C;Accession: A24856; A23849; A60323
R;Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
FEBS Lett. 203, 25-30, 1986
A;Title: Mutations in the guinea pig preproglucagon gene are restricted to a specifi
A;Reference number: A24856; MUID:86248118; PMID:3755107
A;Accession: A24856
A;Molecule type: mRNA
A;Residues: 1-180 <SEI>
A;Cross-references: DDBJ:D00014; GB:N00014; NID:g220288; PIDN:BAA00010.1; PID:g22028
R;Huang, C.G.; Eng, J.; Pan, Y.C.E.; Hulmes, J.D.; Yalow, R.S.
Diabetes 35, 508-512, 1986
A;Title: Guinea pig glucagon differs from other mammalian glucagons.
A;Reference number: A23849; MUID:86165412; PMID:3956884
A;Accession: A23849
A;Molecule type: protein
A;Residues: 53-81 <HUA>
R;Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
Regul. Pept. 11, 309-320, 1985
A;Title: Primary structure of glucagon and a partial sequence of oxyntomodulin (gluc
A;Reference number: A60323; MUID:86017849; PMID:4048553
A;Accession: A60323
A;Molecule type: protein
A;Residues: 53-81 <CON>
A;Note: glucagon-37 was not completely sequenced
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; par
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followin

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 4
GCRTDU
glucagon precursor - degu
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Octodon degus (degu)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: C36118
R;Nishi, M.; Steiner, D.F.
Mol. Endocrinol. 4, 1192-1198, 1990
A;Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and
A;Reference number: A36118; MUID:91155952; PMID:2293024
A;Accession: C36118
A;Molecule type: mRNA
A;Residues: 1-180 <NIS>
A;Cross-references: GB:M57688; NID:g202467; PIDN:AAA40588.1; PID:g202468
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 5
GCRT
glucagon precursor - rat
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Rattus norvegicus (Norway rat)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 26-Feb-1999
C;Accession: A22655; A25190; A44198
R;Heinrich, G.; Gros, P.; Habener, J.F.
J. Biol. Chem. 259, 14082-14087, 1984
A;Title: Glucagon gene sequence: four of six exons encode separate functional domains of
A;Reference number: A22655; MUID:85054853; PMID:6094539
A;Accession: A22655
A;Molecule type: DNA
A;Residues: 1-180 <HEI>
A;Cross-references: EMBL:K02809
A;Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5
R;Mojsov, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
J. Biol. Chem. 261, 11880-11889, 1986
A;Title: Preproglucagon gene expression in pancreas and intestine diversifies at the lev
A;Reference number: A25190; MUID:86304324; PMID:3528148
A;Accession: A25190
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-180 <MOJ>
R;Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
Endocrinology 115, 2176-2181, 1984
A;Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid s
A;Reference number: A44198; MUID:85051023; PMID:6548696
A;Accession: A44198
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <HE2>
A;Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812
C;Genetics:
A;Introns: 31/2; 85/2; 131/2; 179/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followir

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 6
GCHY
glucagon precursor - golden hamster
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-l
C;Species: Mesocricetus auratus (golden hamster)
C;Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998
C;Accession: A01539
R;Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.
Nature 302, 716-718, 1983
A;Title: Hamster preproglucagon contains the sequence of glucagon and two related pe
A;Reference number: A01539; MUID:83167563; PMID:6835407
A;Accession: A01539
A;Molecule type: mRNA
A;Residues: 1-180 <BEL>
A;Cross-references: EMBL:J00059
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pa
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from followir

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 7
GCBO
glucagon precursor - bovine
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-l
C;Species: Bos primigenius taurus (cattle)
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 20-Mar-1998
C;Accession: A93970; A92081; A01538
R;Lopez, L.C.; Frazier, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.
Proc. Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983
A;Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptide
A;Reference number: A93970; MUID:83299996; PMID:6577439
A;Accession: A93970
A;Molecule type: mRNA
A;Residues: 1-180 <LOP>
A;Cross-references: EMBL:K00107
R;Bromer, W.W.; Boucher, M.E.; Koffenberger Jr., J.E.
J. Biol. Chem. 246, 2822-2827, 1971
A;Title: Amino acid sequence of bovine glucagon.
A;Reference number: A92081; MUID:71166445; PMID:5102927
A;Accession: A92081
A;Molecule type: protein
A;Residues: 53-81 <BRO>
C;Superfamily: glucagon

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C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

  Query Match            100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 8
A57294
glucagon precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 16-Jul-1999
C;Accession: A57294; S49903
R;Rothenberg, M.E.; Eilertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A;Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A;Reference number: A57294; MUID:95247722; PMID:7730317
A;Accession: A57294
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <ROT>
A;Cross-references: EMBL:Z46845; NID:g599880; PIDN:CAA86902.1; PID:g599881
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas

  Query Match            100.0%;  Score 155;  DB 2;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 9
GCCH
glucagon precursor - chicken
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Gallus gallus (chicken)
C;Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: S09992; A92189; A60836; A01542
R;Hasegawa, S.; Terazono, K.; Nata, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
FEBS Lett. 264, 117-120, 1990
A;Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken p
A;Reference number: S09992; MUID:90249492; PMID:2338135
A;Accession: S09992
A;Molecule type: mRNA
A;Residues: 1-151 <HAS>
A;Cross-references: EMBL:Y07539; NID:g63749; PIDN:CAA68827.1; PID:g63750
R;Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A;Title: Chicken glucagon. Isolation and amino acid sequence studies.
A;Reference number: A92189; MUID:76069271; PMID:1194290
A;Accession: A92189
A;Molecule type: protein
A;Residues: 55-83 <POL>
R;Huang, J.; Eng, J.; Yalow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A;Title: Chicken glucagon: sequence and potency in receptor assay.
A;Reference number: A60836; MUID:88113418; PMID:2828209
A;Accession: A60836
A;Molecule type: protein
A;Residues: 55-83 <HUA>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pa
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-151/Product: proglucagon #status predicted <PGC>
F;55-83/Product: glucagon #status experimental <GCN>
F;118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F;147/Modified site: amidated carboxyl end (Arg) (amide in mature form from followin

  Query Match            92.3%;  Score 143;  DB 1;  Length 151;
  Best Local Similarity  86.7%;  Pred. No. 2.8e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||::||||||||||||||| ||
Db        118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 10
I51301
proglucagon - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51301
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcri
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51301
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-206 <IRW>
A;Cross-references: GB:S78477; NID:g999386; PIDN:AAB34506.1; PID:g999387
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match            92.3%;  Score 143;  DB 2;  Length 206;
  Best Local Similarity  86.7%;  Pred. No. 4e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||::||||||||||||||| ||
Db        118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 11
GCFGB
glucagon precursor - bullfrog (fragments)
N;Alternate names: oxyntomodulin
N;Contains: glucagon; glucagon-36 (oxyntomodulin); glucagon-like peptide 1; glucagon
C;Species: Rana catesbeiana (bullfrog)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: B28091; C28091; D28091
R;Pollock, H.G.; Hamilton, J.W.; Rouse, J.B.; Ebner, K.E.; Rawitch, A.B.
J. Biol. Chem. 263, 9746-9751, 1988
A;Title: Isolation of peptide hormones from the pancreas of the bullfrog (Rana catesb
A;Reference number: A92730; MUID:88257102; PMID:3260236
A;Accession: B28091
A;Molecule type: protein
A;Residues: 1-36 <PO2>
A;Accession: C28091
A;Molecule type: protein
A;Residues: 37-68 <POL>
A;Accession: D28091
A;Molecule type: protein
A;Residues: 69-101 <PO3>
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-36/Product: glucagon-36 (oxyntomodulin) #status experimental <G36>
F;1-29/Product: glucagon #status predicted <GCN>
F;37-67/Product: glucagon-like peptide 1 #status experimental <GL1>
F;69-101/Product: glucagon-like peptide 2 #status experimental <GL2>
```

```
  Query Match           83.2%;  Score 129;  DB 1;  Length 101;
  Best Local Similarity  76.7%;  Pred. No. 2e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:|||||:||||| :|||||: ||:|||
Db         37 HADGTFTSDMSSYLEEKAAKEFVDWLIKGR 66


RESULT 12
B61125
glucagon-like peptide - American eel
C;Species: Anguilla rostrata (American eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: B61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: B61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status predicted

  Query Match           81.3%;  Score 126;  DB 2;  Length 30;
  Best Local Similarity  76.7%;  Pred. No. 1.4e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:||||||||: ||||||::||  ||
Db          1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 13
C61125
glucagon-like peptide - European eel
C;Species: Anguilla anguilla (European eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: C61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: C61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status experimental

  Query Match           81.3%;  Score 126;  DB 2;  Length 30;
  Best Local Similarity  76.7%;  Pred. No. 1.4e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:||||||||: ||||||::||  ||
Db          1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 14
GCAP2
glucagon 2 precursor - American goosefish
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Lophius americanus (American goosefish)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Jul-2000
C;Accession: A05150
R;Lund, P.K.; Goodman, R.H.; Montminy, M.R.; Dee, P.C.; Habener, J.F.
J. Biol. Chem. 258, 3280-3284, 1983
A;Title: Anglerfish islet pre-proglucagon II. Nucleotide and corresponding amino acid se
A;Reference number: A05150; MUID:83135785; PMID:6338015
A;Accession: A05150
A;Molecule type: mRNA
A;Residues: 1-122 <LUN>
A;Cross-references: GB:J00933; NID:g64021; PIDN:CAA23905.1; PID:g64022
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-21/Domain: signal sequence #status predicted <SIG>
F;22-122/Product: proglucagon 2 #status predicted <PGC2>
F;52-80/Product: glucagon #status predicted <GCN>
F;89-119/Product: glucagon-like peptide 1 #status predicted <GL1>

  Query Match           77.4%;  Score 120;  DB 1;  Length 122;
  Best Local Similarity  70.0%;  Pred. No. 4.8e-10;
  Matches   21;  Conservative    6;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:|||||||: ||||:|::||  ||
Db         89 HADGTYTSDVSSYLQDQAAKDFVSWLKAGR 118


RESULT 15
I51093
glucagon - chinook salmon (fragment)
C;Species: Oncorhynchus tschawytscha (chinook salmon)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51093
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcri
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51093
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-66 <IRW>
A;Cross-references: EMBL:U19920; NID:g736366; PIDN:AAC59670.1; PID:g736367
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match           76.1%;  Score 118;  DB 2;  Length 66;
  Best Local Similarity  66.7%;  Pred. No. 4.9e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:|||||:||: ||||:|::||  ||
Db         33 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 62


Search completed: October 15, 2003, 10:56:43
Job time : 24.5902 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:35:56 ; Search time 13.2787 Seconds
(without alignments)
106.246 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 127863 seqs, 47026705 residues

Total number of hits satisfying chosen parameters: 127863

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_41:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	158	1	GLUC_PIG	P01274 sus scrofa
2	155	100.0	180	1	GLUC_BOVIN	P01272 bos taurus
3	155	100.0	180	1	GLUC_CAVPO	P05110 cavia porce
4	155	100.0	180	1	GLUC_HUMAN	P01275 homo sapien
5	155	100.0	180	1	GLUC_MESAU	P01273 mesocricetu
6	155	100.0	180	1	GLUC_MOUSE	P55095 mus musculu
7	155	100.0	180	1	GLUC_OCTDE	P22890 octodon deg
8	155	100.0	180	1	GLUC_RAT	P06883 rattus norv
9	143	92.3	206	1	GLUC_CHICK	P01277 gallus gall
10	137	88.4	204	1	GLUC_HELSU	O12956 heloderma s
11	129	83.2	103	1	GLUC_RANCA	P15438 rana catesb
12	126	81.3	30	1	GLUM_ANGAN	P41521 anguilla an
13	125	80.6	266	1	GLU1_XENLA	O42143 xenopus lae
14	120	77.4	122	1	GLU2_LOPAM	P04092 lophius ame
15	120	77.4	219	1	GLU2_XENLA	O42144 xenopus lae
16	116	74.8	71	1	GLUC_ICTPU	P04093 ictalurus p
17	116	74.8	78	1	GLUC_LEPSP	P09566 lepisosteus
18	114	73.5	71	1	GLUC_PIAME	P81880 piaractus m
19	113	72.9	68	1	GLUC_ONCKI	P07449 oncorhynchu
20	110.5	71.3	33	1	GLU2_ORENI	P81027 oreochromis
21	110	71.0	121	1	GLUC_CARAU	P79695 carassius a
22	103	66.5	96	1	GLUC_MYOSC	P09686 myoxocephal
23	102	65.8	160	1	GLU1_PETMA	Q9pur1 petromyzon
24	97	62.6	29	1	GLUC_TORMA	P09567 torpedo mar
25	96	61.9	124	1	GLU1_LOPAM	P01278 lophius ame
26	95	61.3	62	1	GLUC_SCYCA	P09687 scyliorhinu
27	93	60.0	29	1	GLUC_CALMI	P13189 callorhynch
28	90	58.1	29	1	GLUC_DIDMA	P18108 didelphis m
29	90	58.1	29	1	GLUC_LAMFL	Q9prq9 lampetra fl
30	90	58.1	29	1	GLUC_RABIT	P25449 oryctolagus
31	90	58.1	36	1	GLU1_ORENI	P81026 oreochromis
32	90	58.1	69	1	GLUC_CANFA	P29794 canis famil
33	88	56.8	29	1	GLUC_ANAPL	P01276 anas platyr
34	87	56.1	29	1	GLUC_CHIBR	P31297 chinchilla
35	87	56.1	87	1	EXE4_HELSU	P26349 heloderma s
36	86	55.5	29	1	GLUC_PLAFE	P23062 platichthys
37	85	54.8	39	1	EXE3_HELHO	P20394 heloderma h
38	83	53.5	75	1	GLUC_AMICA	P33528 amia calva
39	83	53.5	120	1	GLU2_PETMA	Q9pur0 petromyzon
40	79	51.0	36	1	GLUC_HYDCO	P09682 hydrolagus
41	61	39.4	42	1	GIP_BOVIN	P09680 bos taurus
42	61	39.4	42	1	GIP_PIG	P01281 sus scrofa
43	61	39.4	144	1	GIP_MOUSE	P48756 mus musculu
44	61	39.4	144	1	GIP_RAT	Q06145 rattus norv
45	60	38.7	153	1	GIP_HUMAN	P09681 homo sapien

ALIGNMENTS

RESULT 1
GLUC_PIG
ID GLUC_PIG STANDARD; PRT; 158 AA.
AC P01274;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-NOV-1990 (Rel. 16, Last sequence update)
DT 28-FEB-2003 (Rel. 41, Last annotation update)
DE Glucagon precursor [Contains: Glicentin; Glicentin-related polypeptide
DE (GRPP); Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like
DE peptide 2 (GLP2)] (Fragment).
GN GCG.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE OF 1-69.
RX MEDLINE=81248172; PubMed=6894800;
RA Thim L., Moody A.J.;
RT "The primary structure of porcine glicentin (proglucagon).";
RL Regul. Pept. 2:139-150(1981).
RN [2]
RP SEQUENCE OF 1-69.
RX MEDLINE=82221776; PubMed=7045833;
RA Thim L., Moody A.J.;
RT "The amino acid sequence of porcine glicentin.";
RL Peptides 2 Suppl. 2:37-39(1981).
RN [3]
RP SEQUENCE OF 33-61.
RA Bromer W.W., Sinn L.G., Behrens O.K.;
RT "The amino acid sequence of glucagon. V. Location of amide groups,
RT acid degradation studies and summary of sequential evidence.";
RL J. Am. Chem. Soc. 79:2807-2810(1957).
RN [4]
RP SEQUENCE OF 78-107.
RX MEDLINE=89327238; PubMed=2753890;
RA Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT "Complete sequences of glucagon-like peptide-1 from human and pig
RT small intestine.";
RL J. Biol. Chem. 264:12826-12829(1989).
RN [5]
RP SEQUENCE OF 111-158.
RX MEDLINE=88243712; PubMed=3379036;
RA Buhl T., Thim L., Kofod H., Orskov C., Harling H., Holst J.J.;
RT "Naturally occurring products of proglucagon 111-160 in the porcine
RT and human small intestine.";
RL J. Biol. Chem. 263:8621-8624(1988).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE=76051297; PubMed=171582;
RA Sasaki K., Dockerill S., Adamiak D.A., Tickle I.J., Blundell T.L.;
RT "X-ray analysis of glucagon and its relationship to receptor
RT binding.";
RL Nature 257:751-757(1975).
CC -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.

```
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       HUMAN SEQUENCE.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PDB; 1GCN; 30-SEP-83.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues;
KW   3D-structure.
FT   NON_TER       1      1
FT   PEPTIDE       1     69       GLICENTIN.
FT   PEPTIDE       1     30       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      33     61       GLUCAGON.
FT   PEPTIDE      78    107       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     126    158       GLUCAGON-LIKE PEPTIDE 2.
FT   HELIX        39     42
FT   TURN         43     45
FT   HELIX        46     55
FT   TURN         56     57
SQ   SEQUENCE   158 AA;  18212 MW;  28C6FCF257F333B2 CRC64;

  Query Match           100.0%;  Score 155;  DB 1;  Length 158;
  Best Local Similarity  100.0%;  Pred. No. 5.5e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         78 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 107


RESULT 2
GLUC_BOVIN
ID   GLUC_BOVIN     STANDARD;      PRT;   180 AA.
AC   P01272;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83299996; PubMed=6577439;
RA   Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;
RT   "Mammalian pancreatic preproglucagon contains three glucagon-related
RT   peptides.";
RL   Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=71166445; PubMed=5102927;
RA   Bromer W.W., Boucher M.E., Koffenberger J.E. Jr.;
RT   "Amino acid sequence of bovine glucagon.";
RL   J. Biol. Chem. 246:2822-2827(1971).
RN   [3]
RP   STRUCTURE BY NMR OF 53-81.
RX   MEDLINE=71166445; PubMed=6631957;
RA   Braun W., Wider G., Lee K.H., Wuthrich K.;
RT   "Conformation of glucagon in a lipid-water interphase by 1H nuclear
RT   magnetic resonance.";
RL   J. Mol. Biol. 169:921-948(1983).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K00107; AAA30538.1; -.
DR   PDB; 1KX6; 13-FEB-02.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   3D-structure.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP       84     89
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    142
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
FT   TURN         60     64
FT   TURN         74     74
FT   HELIX        75     78
SQ   SEQUENCE   180 AA;  20944 MW;  8D9B4FF05B9F15FF CRC64;

  Query Match           100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 3
GLUC_CAVPO
ID   GLUC_CAVPO     STANDARD;      PRT;   180 AA.
AC   P05110;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-37 (Oxyntomodulin); Glucagon-like peptide 1 (GLP1);
DE   Glucagon-like peptide 2 (GLP2)].
GN   GCG.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=88248118; PubMed=3755107;
RA   Seino S., Welsh M., Bell G.I., Chan S.J., Steiner D.F.;
RT   "Mutations in the guinea pig preproglucagon gene are restricted to a
RT   specific portion of the prohormone sequence.";
RL   FEBS Lett. 203:25-30(1986).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=86165412; PubMed=3956884;
RA   Huang C.G., Eng J., Pan Y.-C.E., Hulmes J.D., Yalow R.S.;
RT   "Guinea pig glucagon differs from other mammalian glucagons.";
```

```
RL   Diabetes 35:508-512(1986).
RN   [3]
RP   PARTIAL SEQUENCE OF 53-89.
RX   MEDLINE=86017849; PubMed=4048553;
RA   Conlon J.M., Hansen H.F., Schwartz T.W.;
RT   "Primary structure of glucagon and a partial sequence of
RT   oxyntomodulin (glucagon-37) from the guinea pig.";
RL   Regul. Pept. 11:309-320(1985).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; D00014; BAA00010.1; -.
DR   PIR; A24856; GCGP.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PEPTIDE     53     89       GLUCAGON-37.
FT   PEPTIDE     92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP     131    143
FT   PEPTIDE    146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20972 MW;  702FB181161D2776 CRC64;

  Query Match            100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 4
GLUC_HUMAN
ID   GLUC_HUMAN     STANDARD;      PRT;   180 AA.
AC   P01275;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-SEP-2003 (Rel. 42, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=88330860; PubMed=2901414;
RA   Drucker D.J., Asa S.;
RT   "Glucagon gene expression in vertebrate brain.";
RL   J. Biol. Chem. 263:13475-13478(1988).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86259053; PubMed=3725587;
RA   White J.W., Saunders G.F.;
RT   "Structure of the human glucagon gene.";
RL   Nucleic Acids Res. 14:4719-4730(1986).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=83271477; PubMed=6877358;
RA   Bell G.I., Sanchez-Pescador R., Laybourn P.J., Najarian R.C.;
RT   "Exon duplication and divergence in the human preproglucagon gene.";
RL   Nature 304:368-371(1983).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreas;
RX   MEDLINE=22388257; PubMed=12477932;
RA   Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA   Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA   Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA   Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA   Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA   Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA   Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA   Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA   Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA   Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA   Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA   Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,
RA   Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA   Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA   Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA   Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA   Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT   "Generation and initial analysis of more than 15,000 full-length
RT   human and mouse cDNA sequences.";
RL   Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN   [5]
RP   SEQUENCE OF 53-81.
RA   Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
RT   "The amino acid sequence of human glucagon.";
RL   FEBS Lett. 21:315-319(1972).
RN   [6]
RP   SEQUENCE OF 98-127.
RX   MEDLINE=89327238; PubMed=2753890;
RA   Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT   "Complete sequences of glucagon-like peptide-1 from human and pig
RT   small intestine.";
RL   J. Biol. Chem. 264:12826-12829(1989).
RN   [7]
RP   X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
RX   MEDLINE=98334683; PubMed=9667960;
RA   Sturm N.S., Lin Y., Burley S.K., Krstenansky J.L., Ahn J.M.,
RA   Azizeh B.Y., Trivedi D., Hruby V.J.;
RT   "Structure-function studies on positions 17, 18, and 21 replacement
RT   analogues of glucagon: the importance of charged residues and salt
RT   bridges in glucagon biological activity.";
RL   J. Med. Chem. 41:2693-2700(1998).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- PHARMACEUTICAL: Available under the names Glucagon (Eli Lilly) and
CC       GlucaGen or Glucagon Novo Nordisk (Novo Nordisk). Used to treat
CC       severe hypoglycemia in insulin-dependent diabetics.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   -!- DATABASE: NAME=Glucagon at Eli Lilly;
CC       NOTE=Clinical information on Eli Lilly glucagon products;
CC       WWW="http://www.lillyDiabetes.com/Products/PatientInfo.cfm".
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------------
DR   EMBL; J04040; AAA52567.1; -.
DR   EMBL; X03991; CAA27627.1; -.
DR   EMBL; V01515; CAA24759.1; -.
DR   EMBL; BC005278; AAH05278.1; -.
DR   PIR; A24377; GCHU.
DR   PDB; 1BH0; 18-NOV-98.
DR   PDB; 1D0R; 23-OCT-02.
DR   Genew; HGNC:4191; GCG.
DR   MIM; 138030; -.
DR   MIM; 231530; -.
DR   GO; GO:0005625; C:soluble fraction; TAS.
DR   GO; GO:0008283; P:cell proliferation; TAS.
DR   GO; GO:0007631; P:feeding behavior; TAS.
DR   GO; GO:0007186; P:G-protein coupled receptor protein signalin. . .; TAS.
DR   GO; GO:0007165; P:signal transduction; TAS.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Pharmaceutical; 3D-structure; Polymorphism.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP       84     96
FT   PEPTIDE      98    127       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    143
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
FT   VARIANT     115    115       A -> V (IN dbSNP:5650).
FT                                /FTId=VAR_014596.
FT   CONFLICT     82     82       K -> N (IN REF. 3).
FT   TURN         59     62
FT   HELIX        63     77
FT   TURN         78     79
SQ   SEQUENCE   180 AA;  20909 MW;  7A99EEC629B2862C CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 5
GLUC_MESAU
ID   GLUC_MESAU     STANDARD;      PRT;   180 AA.
AC   P01273;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83167563; PubMed=6835407;
RA   Bell G.I., Santerre R.F., Mullenbach G.T.;
RT   "Hamster preproglucagon contains the sequence of glucagon and two
RT   related peptides.";
RL   Nature 302:716-718(1983).
RN   [2]
RP   REVISIONS TO 12-15.
RA   Bell G.I.;
RL   Submitted (XXX-1985) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------------
DR   EMBL; J00059; AAA37074.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PROPEP       84     89
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    143
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20954 MW;  02791B49D7AADD4B CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 6
GLUC_MOUSE
ID   GLUC_MOUSE     STANDARD;      PRT;   180 AA.
AC   P55095;
DT   01-OCT-1996 (Rel. 34, Created)
DT   01-OCT-1996 (Rel. 34, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreatic islets;
RX   MEDLINE=95247722; PubMed=7730317;
RA   Rothenberg M.E., Eilertson C.D., Klein K., Zhou Y., Linberg I.;
RA   McDonald J.K., Mackin R.B., Noe B.D.;
RT   "Processing of mouse proglucagon by recombinant prohormone convertase
RT   1 and immunopurified prohormone convertase 2 in vitro.";
RL   J. Biol. Chem. 270:10136-10146(1995).
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RN   [2]
RP   SEQUENCE FROM N.A.
RA   Shamsadin R., Knepel W.;
RT   "Mouse glucagon full length cDNA.";
RL   Submitted (JUN-2000) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Z46845; CAA86902.1; -.
DR   EMBL; AF276754; AAK96898.1; -.
DR   PIR; A57294; A57294.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:95674; Gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53    81       GLUCAGON.
FT   PROPEP       84    89
FT   PEPTIDE      92    128      GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    143
FT   PEPTIDE     146    178      GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20906 MW;  595AA6DD9A589950 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 7
GLUC_OCTDE
ID   GLUC_OCTDE     STANDARD;      PRT;   180 AA.
AC   P22890;
DT   01-AUG-1991 (Rel. 19, Created)
DT   01-AUG-1991 (Rel. 19, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Octodon degus (Degu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Octodontidae; Octodon.
OX   NCBI_TaxID=10160;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91155952; PubMed=2293024;
RA   Nishi M., Steiner D.F.;
RT   "Cloning of complementary DNAs encoding islet amyloid polypeptide,
RT   insulin, and glucagon precursors from a New World rodent, the degu,
RT   Octodon degus.";
RL   Mol. Endocrinol. 4:1192-1198(1990).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; M57688; AAA40588.1; -.
DR   PIR; C36118; GCRTDU.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL       1     20
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53    81       GLUCAGON.
FT   PROPEP       84    89
FT   PEPTIDE      92    127      GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      131    142
FT   PEPTIDE     146    178      GLUCAGON-LIKE PEPTIDE 2.
FT   MOD_RES     127    127      AMIDATION (G-128 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   180 AA;  21165 MW;  6E8836160A9A3051 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 8
GLUC_RAT
ID   GLUC_RAT       STANDARD;      PRT;   180 AA.
AC   P05883;
DT   01-JAN-1988 (Rel. 06, Created)
DT   01-JAN-1988 (Rel. 06, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85054853; PubMed=6094539;
RA   Heinrich G., Gros P., Habener J.F.;
RT   "Glucagon gene sequence. Four of six exons encode separate functional
RT   domains of rat pre-proglucagon.";
RL   J. Biol. Chem. 259:14082-14087(1984).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85051023; PubMed=6548696;
RA   Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
```

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RT   "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
RT   amino acid sequences of the rat pancreatic complementary
RT   deoxyribonucleic acid.";
RL   Endocrinology 115:2176-2181(1984).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86304324; PubMed=3528148;
RA   Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
RA   Habener J.F.;
RT   "Preproglucagon gene expression in pancreas and intestine diversifies
RT   at the level of post-translational processing.";
RL   J. Biol. Chem. 261:11880-11889(1986).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K02813; AAA41235.1; -.
DR   EMBL; K02809; AAA41235.1; JOINED.
DR   EMBL; K02810; AAA41235.1; JOINED.
DR   EMBL; K02811; AAA41235.1; JOINED.
DR   EMBL; K02812; AAA41235.1; JOINED.
DR   PIR; A22655; GCRT.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PROPEP      84     89
FT   PEPTIDE     92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP     131    143
FT   PEPTIDE    146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20846 MW;  76931409D03C7978 CRC64;

  Query Match           100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 9
GLUC_CHICK
ID   GLUC_CHICK     STANDARD;      PRT;   206 AA.
AC   P01277; Q91410;
DT   21-JUL-1986 (Rel. 01, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
OS   Gallus gallus (Chicken), and
OS   Meleagris gallopavo (Common turkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031, 9103;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORM PANCREATIC).
RC   SPECIES=Chicken; TISSUE=Pancreas;
RX   MEDLINE=90249492; PubMed=2338135;
RA   Hasegawa S., Terazono K., Nata K., Takada T., Yamamoto H.,
RA   Okamoto H.;
RT   "Nucleotide sequence determination of chicken glucagon precursor
RT   cDNA. Chicken preproglucagon does not contain glucagon-like peptide
RT   II.";
RL   FEBS Lett. 264:117-120(1990).
RN   [2]
RP   SEQUENCE FROM N.A. (ISOFORM INTESTINAL).
RC   SPECIES=Chicken; TISSUE=Intestinal mucosa;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
RN   [3]
RP   SEQUENCE OF 55-83.
RC   SPECIES=Chicken;
RX   MEDLINE=76069271; PubMed=1194290;
RA   Pollock H.G., Kimmel J.R.;
RT   "Chicken glucagon. Isolation and amino acid sequence studies.";
RL   J. Biol. Chem. 250:9377-9380(1975).
RN   [4]
RP   COMPOSITION, AND SEQUENCE OF 55-83.
RC   SPECIES=M.gallopavo;
RX   MEDLINE=73074118; PubMed=4645932;
RA   Markussen J., Frandsen E.K., Heding L.G., Sundby F.;
RT   "Turkey glucagon: crystallization, amino acid composition and
RT   immunology.";
RL   Horm. Metab. Res. 4:360-363(1972).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=Intestinal;
CC         IsoId=P01277-1; Sequence=Displayed;
CC       Name=Pancreatic;
CC         IsoId=P01277-2; Sequence=VSP_001753, VSP_001754;
CC         Note=Has been shown to exist only in chicken so far;
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: THE COMPOSITION OF TURKEY GLUCAGON APPEARS TO BE
CC       IDENTICAL WITH CHICKEN.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   ---------------------------------------------------------------------
DR   EMBL; Y07539; CAA68827.1; -.
DR   EMBL; S78477; AAB34506.1; -.
DR   PIR; I51301; I51301.
DR   PIR; S09992; GCCH.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL       1     22
FT   PEPTIDE     23     52       GLICENTIN-RELATED POLYPEPTIDE.
```

```
FT   PEPTIDE      55     83       GLUCAGON.
FT   PROPEP       86    116
FT   PEPTIDE     118    147       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP      151    163
FT   PEPTIDE     166    198       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP      199    206
FT   MOD_RES     147    147       AMIDATION (G-148 PROVIDE AMIDE GROUP).
FT   VARSPLIC    151    151       D -> E (in isoform Pancreatic).
FT                                /FTId=VSP_001753.
FT   VARSPLIC    152    206       Missing (in isoform Pancreatic).
FT                                /FTId=VSP_001754.
SQ   SEQUENCE   206 AA;  23875 MW;  AB299E1B02FC6AA4 CRC64;

  Query Match           92.3%;  Score 143;  DB 1;  Length 206;
  Best Local Similarity  86.7%;  Pred. No. 3.7e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||::||||||||||||||||| ||
Db        118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 10
GLUC_HELSU
ID   GLUC_HELSU     STANDARD;      PRT;   204 AA.
AC   O12956; O12955;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP-1); Glucagon-like peptide 2
DE   (GLP-2)].
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
CC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE FROM N.A. (ISOFORMS LPI AND LPII), AND TISSUE SPECIFICITY.
RC   TISSUE=Intestine, and Pancreas;
RX   MEDLINE=97172477; PubMed=9020121;
RA   Chen Y.E., Drucker D.J.;
RT   "Tissue-specific expression of unique mRNAs that encode proglucagon-
RT   derived peptides or exendin 4 in the lizard.";
RL   J. Biol. Chem. 272:4108-4115(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=LPII;
CC         IsoId=O12956-1; Sequence=Displayed;
CC       Name=LPI;
CC         IsoId=O12956-2; Sequence=VSP_001756, VSP_001757;
CC   -!- TISSUE SPECIFICITY: Isoform LPII is expressed in both pancreas and
CC       intestine. Expression of isoform LPI is restricted to the
CC       pancreas. Neither isoform is detected in salivary glands.
CC   -!- INDUCTION: Produced in the a cells of the islets of langerhans in
CC       response to a drop in blood sugar concentration.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   the European Bioinformatics Institute. There are no restrictions on its
CC   use by non-profit institutions as long as its content is in no way
CC   modified and this statement is not removed. Usage by and for commercial
CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; U77612; AAB51129.1; -.
DR   EMBL; U77611; AAB51128.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation; Alternative splicing.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PROPEP      84    114
FT   PEPTIDE    116    145       GLUCAGON-LIKE PEPTIDE 1.
FT   PROPEP     149    161
FT   PEPTIDE    164    196       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP     197    204
FT   MOD_RES    145    145       AMIDATION (G-146 PROVIDE AMIDE GROUP).
FT   VARSPLIC   149    149       D -> E (in isoform LPI).
FT                               /FTId=VSP_001756.
FT   VARSPLIC   150    204       Missing (in isoform LPI).
FT                               /FTId=VSP_001757.
SQ   SEQUENCE   204 AA;  23553 MW;  B132E3FE46873E72 CRC64;

  Query Match           88.4%;  Score 137;  DB 1;  Length 204;
  Best Local Similarity  83.3%;  Pred. No. 2.6e-12;
  Matches   25;  Conservative    3;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:| :|||:|||||||||||||||| ||
Db        116 HADGRYTSDISSYLEGQAAKEFIAWLVNGR 145


RESULT 11
GLUC_RANCA
ID   GLUC_RANCA     STANDARD;      PRT;   103 AA.
AC   P15438; P15439; P15440;
DT   01-APR-1990 (Rel. 14, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Glucagon precursor (Fragments).
OS   Rana catesbeiana (Bull frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae; Rana.
OX   NCBI_TaxID=8400;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=88257102; PubMed=3260236;
RA   Pollock H.G., Hamilton J.W., Rouse J.B., Ebner K.E., Rawitch A.B.;
RT   "Isolation of peptide hormones from the pancreas of the bullfrog
RT   (Rana catesbeiana). Amino acid sequences of pancreatic polypeptide,
RT   oxyntomodulin, and two glucagon-like peptides.";
RL   J. Biol. Chem. 263:9746-9751(1988).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       OTHER SPECIES SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone.
FT   PEPTIDE      1     29       GLUCAGON.
FT   PEPTIDE      1     36       GLUCAGON-36 (OXYNTOMODULIN).
FT   PEPTIDE     39     70       GLUCAGON-LIKE PEPTIDE 1.
FT   NON_CONS    70     71
FT   PEPTIDE     71    103       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   103 AA;  11719 MW;  316287B7BAE1C8F7 CRC64;

  Query Match           83.2%;  Score 129;  DB 1;  Length 103;
  Best Local Similarity  76.7%;  Pred. No. 1.8e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;
```

```
Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||||||:||||| :|||||: ||:|||
Db         39 HADGTFTSDMSSYLEEKAAKEFVDWLIKGR 68


RESULT 12
GLUM_ANGAN
ID   GLUM_ANGAN     STANDARD;      PRT;    30 AA.
AC   P41521;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   15-SEP-2003 (Rel. 42, Last annotation update)
DE   Glucagon-like peptide (GLP).
OS   Anguilla anguilla (European freshwater eel), and
OS   Anguilla rostrata (American eel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Anguilliformes; Anguillidae;
OC   Anguilla.
OX   NCBI_TaxID=7936, 7938;
RN   [1]
RP   SEQUENCE.
RC   SPECIES=A.anguilla, and A.rostrata;
RC   TISSUE=Pancreas;
RX   MEDLINE=91340068; PubMed=1874385;
RA   Conlon J.M., Andrews P.C., Thim L., Moon T.W.;
RT   "The primary structure of glucagon-like peptide but not insulin has
RT   been conserved between the American eel, Anguilla rostrata and the
RT   European eel, Anguilla anguilla.";
RL   Gen. Comp. Endocrinol. 82:23-32(1991).
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; B61125; B61125.
DR   PIR; C61125; C61125.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation.
FT   MOD_RES      30     30       AMIDATION.
SQ   SEQUENCE   30 AA;  3376 MW;  592DA5EABD6E49D0 CRC64;

  Query Match             81.3%;  Score 126;  DB 1;  Length 30;
  Best Local Similarity   76.7%;  Pred. No. 1.4e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:|||||||||: ||||||::|| ||
Db          1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 13
GLU1_XENLA
ID   GLU1_XENLA     STANDARD;      PRT;   266 AA.
AC   O42143;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon I precursor [Contains: Glucagon; Glucagon-like peptide 1A
DE   (GLP-1A); Glucagon-like peptide 1B (GLP-1B); Glucagon-like peptide 1C
DE   (GLP-1C); Glucagon-like peptide 2 (GLP-2)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=Pancreas;
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- ALTERNATIVE PRODUCTS:
CC       Event=Alternative splicing; Named isoforms=2;
CC       Name=1;
CC         IsoId=O42143-1; Sequence=Displayed;
CC       Name=2;
CC         IsoId=O42143-2; Sequence=VSP_001755;
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF004432; AAB65660.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 5.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 5.
DR   PROSITE; PS00260; GLUCAGON; 5.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family; Alternative splicing.
FT   SIGNAL       1     20       POTENTIAL.
FT   PROPEP      21     50
FT   PEPTIDE     53     81       GLUCAGON.
FT   PROPEP      84     95
FT   PEPTIDE     97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PROPEP     136    140
FT   PEPTIDE     142    172       GLUCAGON-LIKE PEPTIDE 1B.
FT   PROPEP     175    178
FT   PEPTIDE     180    210       GLUCAGON-LIKE PEPTIDE 1C.
FT   PROPEP     213    224
FT   PEPTIDE     227    259       GLUCAGON-LIKE PEPTIDE 2.
FT   PROPEP     261    266
FT   VARSPLIC    214    261       Missing (in isoform 2).
FT                                /FTId=VSP_001755.
SQ   SEQUENCE   266 AA;  30951 MW;  544F7BBC20AF872C CRC64;

  Query Match             80.6%;  Score 125;  DB 1;  Length 266;
  Best Local Similarity   70.0%;  Pred. No. 1.7e-10;
  Matches   21;  Conservative    7;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||:|:::||| :||||: ||:|||
Db        180 HAEGTFTNDMTNYLEEKAAKEFVGWLIKGR 209


RESULT 14
GLU2_LOPAM
ID   GLU2_LOPAM     STANDARD;      PRT;   122 AA.
AC   P04092;
DT   01-NOV-1986 (Rel. 03, Created)
DT   01-NOV-1986 (Rel. 03, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon II precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon II; Glucagon-like peptide II].
OS   Lophius americanus (American goosefish) (Anglerfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Paracanthopterygii; Lophiiformes; Lophiidae; Lophius.
OX   NCBI_TaxID=8073;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83135785; PubMed=6338015;
RA   Lund P.K., Goodman R.H., Montminy M.R., Dee P.C., Habener J.F.;
RT   "Anglerfish islet pre-proglucagon II. Nucleotide and corresponding
```

```
RT   amino acid sequence of the cDNA.";
RL   J. Biol. Chem. 258:3280-3284(1983).
RN   [2]
RP   PROCESSING.
RX   MEDLINE=86286913; PubMed=3526301;
RA   Noe B.D., Andrews P.C.;
RT   "Specific glucagon-related peptides isolated from anglerfish islets
RT   are metabolic cleavage products of (pre)proglucagon-II.";
RL   Peptides 7:331-339(1986).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; V00632; CAA23905.1; -.
DR   PIR; A05150; GCAF2.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     21
FT   PEPTIDE      22    49       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      52    80       GLUCAGON II.
FT   PROPEP       83    86
FT   PEPTIDE      89    119      GLUCAGON-LIKE PEPTIDE II.
SQ   SEQUENCE   122 AA;  14171 MW;  5140AC47EF915519 CRC64;

  Query Match             77.4%;  Score 120;  DB 1;  Length 122;
  Best Local Similarity   70.0%;  Pred. No. 4e-10;
  Matches   21;  Conservative    6;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |:|||:|||||||: ||||:|::||  ||
Db         89 HADGTYTSDVSSYLQDQAAKDFVSWLKAGR 118


RESULT 15
GLU2_XENLA
ID   GLU2_XENLA     STANDARD;      PRT;   219 AA.
AC   O42144;
DT   28-FEB-2003 (Rel. 41, Created)
DT   28-FEB-2003 (Rel. 41, Last sequence update)
DT   28-FEB-2003 (Rel. 41, Last annotation update)
DE   Glucagon II precursor [Contains: Glucagon; Glucagon-like peptide 1A
DE   (GLP-1A); Glucagon-like peptide 1B (GLP-1B); Glucagon-like peptide 1C
DE   (GLP-1C)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreas;
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: Promotes hydrolysis of glycogen and lipids, and raises
CC       the blood sugar level.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; AF004433; AAB65561.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL       1     20       POTENTIAL.
FT   PROPEP       21    50
FT   PEPTIDE      53    81       GLUCAGON.
FT   PROPEP       84    95
FT   PEPTIDE      97    133      GLUCAGON-LIKE PEPTIDE 1A.
FT   PROPEP       136   140
FT   PEPTIDE      142   172      GLUCAGON-LIKE PEPTIDE 1B.
FT   PROPEP       175   178
FT   PEPTIDE      180   210      GLUCAGON-LIKE PEPTIDE 1C.
FT   PROPEP       213   219
SQ   SEQUENCE   219 AA;  25271 MW;  ACC699233C362CE0 CRC64;

  Query Match             77.4%;  Score 120;  DB 1;  Length 219;
  Best Local Similarity   66.7%;  Pred. No. 7.3e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||:|:::||| :|||||: ||: ||
Db        180 HAEGTFTNDMTNYLEEKAAKEFVGWLINGR 209


Search completed: October 15, 2003, 10:53:39
Job time : 14.2787 secs
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GenCore version 5.1.6

OM protein - protein search, using sw model

Run on: October 15, 2003, 10:48:32 ; Search time 59.0164 Seconds
(without alignments)
131.177 Million cell updates/sec

Title: US-09-719-410-4
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 830525 seqs, 258052604 residues

Total number of hits satisfying chosen parameters: 830525

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_23:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	176	6	Q8MJ25	Q8mj25 ovis aries
2	155	100.0	180	6	Q95LG0	Q95lg0 canis famil
3	129	83.2	220	13	Q8UWL9	Q8uwl9 hoplobatrac
4	118	76.1	72	13	Q91409	Q91409 oncorhynchu
5	118	76.1	178	13	Q91971	Q91971 oncorhynchu
6	113	72.9	178	13	Q91189	Q91189 oncorhynchu
7	103	66.5	121	13	Q9DDE6	Q9dde6 brachydanio
8	90	58.1	96	13	Q9DG43	Q9dg43 ambloplites
9	61	39.4	130	11	Q9CVF1	Q9cvf1 mus musculu
10	61	39.4	144	11	Q9D887	Q9d887 mus musculu
11	60	38.7	170	6	Q8MI77	Q8mi77 bos taurus
12	59	38.1	171	11	Q9D2Z7	Q9d2z7 mus musculu
13	59	38.1	389	2	Q93IH2	Q93ih2 wolinella s
14	54	34.8	172	13	Q9DE29	Q9de29 brachydanio
15	53.5	34.5	175	13	Q90XZ4	Q90xz4 ictalurus p
16	52.5	33.9	427	17	Q8TLY0	Q8tly0 methanosarc
17	52	33.5	38	5	Q8IU39	Q8iu39 dugesia jap
18	52	33.5	38	5	Q8IU38	Q8iu38 hydra magni
19	52	33.5	38	5	Q8IU37	Q8iu37 sepioteuthi
20	52	33.5	38	5	Q8IU36	Q8iu36 periplaneta
21	52	33.5	38	13	Q8AYP5	Q8ayp5 trachurus j
22	52	33.5	38	13	Q8AYP4	Q8ayp4 acipenser s
23	52	33.5	138	13	Q98SP4	Q98sp4 oncorhynchu
24	52	33.5	170	11	Q8BJT8	Q8bjt8 mus musculu
25	52	33.5	171	13	Q9PUPB	Q9puf8 xenopus lae
26	52	33.5	173	13	Q98SP5	Q98sp5 oncorhynchu
27	51.5	33.2	285	17	Q8TPJ9	Q8tpj9 methanosarc
28	51	32.9	352	5	Q9XXQ1	Q9xxq1 caenorhabdi
29	51	32.9	810	4	Q9NTW8	Q9ntw8 homo sapien
30	51	32.9	867	4	Q9UFX9	Q9ufx9 homo sapien
31	50.5	32.6	175	13	Q9BTU3	Q98tu3 brachydanio
32	50.5	32.6	210	5	Q95XL4	Q95xl4 caenorhabdi
33	50.5	32.6	224	16	Q8XW49	Q8xw49 ralstonia s
34	50.5	32.6	372	10	Q9XFW9	Q9xfw9 cicer ariet
35	50	32.3	89	13	Q98SP6	Q98sp6 anas platyr
36	50	32.3	171	10	Q9FGY5	Q9fgy5 arabidopsis
37	50	32.3	244	16	Q8Z1U5	Q8z1u5 salmonella
38	50	32.3	331	5	O18301	O18301 caenorhabdi
39	50	32.3	1003	5	Q8IAC0	Q8iac0 halocynthia
40	49.5	31.9	285	17	Q8Q0X5	Q8q0x5 methanosarc
41	49.5	31.9	378	5	Q25062	Q25062 hydractinia
42	49.5	31.9	576	5	Q966F0	Q966f0 caenorhabdi
43	49.5	31.9	589	5	Q9N5B9	Q9n5b9 caenorhabdi
44	49.5	31.9	613	5	Q8WSP1	Q8wsp1 caenorhabdi
45	49.5	31.9	786	5	Q9N5B7	Q9n5b7 caenorhabdi

ALIGNMENTS

RESULT 1
Q8MJ25
ID Q8MJ25 PRELIMINARY; PRT; 176 AA.
AC Q8MJ25;
DT 01-OCT-2002 (TrEMBLrel. 22, Created)
DT 01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT 01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE Preproglucagon (Fragment).
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Pancreas;
RA Limesand S.W., Hay W.W. Jr.;
RT "Characterization of the endocrine pancreas in an ovine placental
RT insufficiency IUGR fetus.";
RL Submitted (JUL-2002) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF529185; AAM94409.1; -.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 3.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 3.
DR PROSITE; PS00260; GLUCAGON; 2.
FT NON_TER 176 176
SQ SEQUENCE 176 AA; 20335 MW; 13174039BD6CE2B3 CRC64;

Query Match 100.0%; Score 155; DB 6; Length 176;
Best Local Similarity 100.0%; Pred. No. 1.5e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127
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RESULT 2

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Q95LG0
ID   Q95LG0      PRELIMINARY;      PRT;   180 AA.
AC   Q95LG0;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Preproglucagon.
OS   Canis familiaris (Dog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX   NCBI_TaxID=9615;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Irwin D.M.;
RT   "cDNA cloning of proglucagon from the stomach and pancreas of the
RT   dog.";
RL   Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF308439; AAL09425.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
SQ   SEQUENCE   180 AA;  21114 MW;  80F66941AFC324FD CRC64;

  Query Match           100.0%;  Score 155;  DB 6;  Length 180;
  Best Local Similarity  100.0%;  Pred. No. 1.6e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||||||||||||||||||||||||||||||
Db         98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 3
Q8UWL9
ID   Q8UWL9      PRELIMINARY;      PRT;   220 AA.
AC   Q8UWL9;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Proglucagon.
OS   Hoplobatrachus rugulosus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae;
OC   Hoplobatrachus.
OX   NCBI_TaxID=110072;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Yeung C.-M., Chow B.K.C.;
RT   "Identification of a proglucagon cDNA from Rana tigrina rugulosa that
RT   encodes two GLP-1s.";
RL   Gen. Comp. Endocrinol. 124:0-0(2001).
DR   EMBL; AF324209; AAL35758.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; 4.
SQ   SEQUENCE   220 AA;  25615 MW;  C72D926E7F89E381 CRC64;

  Query Match           83.2%;  Score 129;  DB 13;  Length 220;
  Best Local Similarity  76.7%;  Pred. No. 1.9e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||||||::|||| :|||||: ||:|||
Db        135 HAEGTFTSDMTSYLEEKAAKEFVDWLIKGR 164


RESULT 4
Q91409
ID   Q91409      PRELIMINARY;      PRT;    72 AA.
AC   Q91409; Q91232;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   PROGLUCAGON (Fragment).
OS   Oncorhynchus tschawytscha (Chinook salmon) (King salmon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=74940;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
DR   EMBL; S78474; AAD14283.1; -.
DR   EMBL; U19920; AAC59670.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   72 AA;  8293 MW;  8584352B1C260A31 CRC64;

  Query Match           76.1%;  Score 118;  DB 13;  Length 72;
  Best Local Similarity  66.7%;  Pred. No. 2.4e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:|||||:||: ||||:|::|| ||
Db         39 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 68


RESULT 5
Q91971
ID   Q91971      PRELIMINARY;      PRT;   178 AA.
AC   Q91971; Q91408; Q91188; Q92169;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon I precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19913; AAC59667.1; -.
DR   EMBL; U19917; AAC59669.1; -.
DR   EMBL; U19918; AAC60212.1; -.
DR   EMBL; U19919; AAC60213.1; -.
DR   EMBL; U19918; AAC60213.1; JOINED.
DR   EMBL; S78475; AAB34505.1; -.
DR   EMBL; S78473; AAB34504.2; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
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DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL       1      ?       POTENTIAL.
FT   PEPTIDE      ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE     52     80       GLUCAGON.
FT   PEPTIDE     85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC   124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  20034 MW;  5CF6980CF2A9D58E CRC64;

  Query Match             76.1%;  Score 118;  DB 13;  Length 178;
  Best Local Similarity   66.7%;  Pred. No. 7.1e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:||:|||||:||: ||||:|::||  ||
Db         90 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 119


RESULT 6
Q91189
ID   Q91189      PRELIMINARY;      PRT;   178 AA.
AC   Q91189; Q92168;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Glucagon II precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19914; AAC59668.1; -.
DR   EMBL; U19916; AAC60210.1; -.
DR   EMBL; U19915; AAC60210.1; JOINED.
DR   EMBL; U19915; AAC60209.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL       1      ?       POTENTIAL.
FT   PEPTIDE      ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE     52     80       GLUCAGON.
FT   PEPTIDE     85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC   124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  19998 MW;  E89D73866CD91C66 CRC64;

  Query Match             72.9%;  Score 113;  DB 13;  Length 178;
  Best Local Similarity   65.5%;  Pred. No. 4.1e-09;
  Matches   19;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKG 29
              ||:||:|||||:||: ||||:|::||  |
Db         90 HADGTYTSDVSTYLQDQAAKDFVSWLKSG 118


RESULT 7
Q9DDE6
ID   Q9DDE6      PRELIMINARY;      PRT;   121 AA.
AC   Q9DDE6;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Glucagon polyprotein.
GN   GCG OR GLU.
OS   Brachydanio rerio (Zebrafish) (Danio rerio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99425190; PubMed=10495291;
RA   Argenton F., Zecchin E., Bortolussi M.;
RT   "Early appearance of pancreatic hormone-expressing cells in the
RT   zebrafish embryo.";
RL   Mech. Dev. 87:217-221(1999).
DR   EMBL; AJ133697; CAC20108.1; -.
DR   HSSP; P01274; 1GCN.
DR   ZFIN; ZDB-GENE-010219-1; gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Polyprotein.
FT   CHAIN       49     79       GLUCAGON.
FT   CHAIN       88    121       GLUCAGON-LIKE PEPTIDE 1.
SQ   SEQUENCE   121 AA;  13537 MW;  A85385F690DA180F CRC64;

  Query Match             66.5%;  Score 103;  DB 13;  Length 121;
  Best Local Similarity   66.7%;  Pred. No. 8.8e-08;
  Matches   20;  Conservative    5;  Mismatches    5;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |||||:||||||||: |||: |:| |  |:
Db         88 HAEGTYTSDVSSYLQDQAAQRFVARLKSGQ 117


RESULT 8
Q9DG43
ID   Q9DG43      PRELIMINARY;      PRT;    96 AA.
AC   Q9DG43;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Proglucagon (Fragment).
OS   Ambloplites rupestris (Rock bass).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoidei;
OC   Centrarchidae; Ambloplites.
OX   NCBI_TaxID=109273;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Al-Mahrouki A.A., Irwin D.M., Youson J.H.;
RT   "Rock Bass Proglucagon.";
RL   Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF190499; AAG16778.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
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DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
FT   CHAIN         1    >29       GLUCAGON.
FT   CHAIN        39    >70       GLUCAGON-LIKE PEPTIDE 1.
FT   CHAIN        86    >96       GLUCAGON-LIKE PEPTIDE 2.
FT   NON_TER      96     96
SQ   SEQUENCE   96 AA;  11225 MW;  6435033EBDDC00CE CRC64;

  Query Match             58.1%;  Score 90;  DB 13;  Length 96;
  Best Local Similarity   46.7%;  Pred. No. 6.5e-06;
  Matches   14;  Conservative   10;  Mismatches    6;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |::||||:| ::||| : |::|| ||:  :
Db          1 HSQGTFTNDYTNYLEDRQAQDFIRWLMNNK 30


RESULT 9
Q9CVF1
ID   Q9CVF1      PRELIMINARY;      PRT;   130 AA.
AC   Q9CVF1;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Gastric inhibitory polypeptide (Fragment).
GN   GIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Small intestine;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK008525; BAB25720.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:107504; Gip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   130 AA;  14906 MW;  95B3B6E91E2A7992 CRC64;

  Query Match             39.4%;  Score 61;  DB 11;  Length 130;
  Best Local Similarity   40.0%;  Pred. No. 0.25;
  Matches   12;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              :|||||  || |  ::    ::|: ||:  |
Db         30 YAEGTFISDYSIAMDKIRQQDFVNWLLAQR 59


RESULT 10
Q9D887
ID   Q9D887      PRELIMINARY;      PRT;   144 AA.
AC   Q9D887;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Gastric inhibitory polypeptide.
GN   GIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Small intestine;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK008308; BAB25592.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:107504; Gip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
SQ   SEQUENCE   144 AA;  16389 MW;  36E618665D4DA8C3 CRC64;

  Query Match             39.4%;  Score 61;  DB 11;  Length 144;
  Best Local Similarity   40.0%;  Pred. No. 0.29;
  Matches   12;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              :|||||  || |  ::    ::|: ||:  |
Db         44 YAEGTFISDYSIAMDKIRQQDFVNWLLAQR 73


RESULT 11
Q8MI77
ID   Q8MI77      PRELIMINARY;      PRT;   170 AA.
AC   Q8MI77;
DT   01-OCT-2002 (TrEMBLrel. 22, Created)
DT   01-OCT-2002 (TrEMBLrel. 22, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Vasoactive intestinal polypeptide precursor.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=22092342; PubMed=12097482;
RA   Hamelink C., Lee H.-W., Chen Y., Grimaldi M., Eiden L.E.;
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RT   "Coincident elevation of cAMP and calcium influx by PACAP-27
RT   synergistically regulates vasoactive intestinal polypeptide gene
RT   transcription through a novel PKA-independent signaling pathway.";
RL   J. Neurosci. 22:5310-5320(2002).
DR   EMBL; AF503910; AAM28152.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Signal.
FT   SIGNAL        1     22       POTENTIAL.
FT   CHAIN        81    107       PHI.
FT   CHAIN       125    152       VIP.
SQ   SEQUENCE   170 AA;  19164 MW;  9C6A6049AF7BFF81 CRC64;

  Query Match             38.7%;  Score 60;  DB 6;  Length 170;
  Best Local Similarity   43.3%;  Pred. No. 0.5;
  Matches   13;  Conservative    6;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:| |||| |  |   :||:::  |:  |
Db         81 HADGVFTSDYSRLLGQLSAKKYLESLIGKR 110


RESULT 12
Q9D2Z7
ID   Q9D2Z7      PRELIMINARY;      PRT;   171 AA.
AC   Q9D2Z7;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
DE   Vasoactive intestinal polypeptide.
GN   VIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=Cecum;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK018599; BAB31301.1; -.
DR   MGD; MGI:98933; Vip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
SQ   SEQUENCE   171 AA;  19135 MW;  134A434DB6DF1254 CRC64;

  Query Match             38.1%;  Score 59;  DB 11;  Length 171;
  Best Local Similarity   43.3%;  Pred. No. 0.71;
  Matches   13;  Conservative    6;  Mismatches   11;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              ||:| |||| |  |   :||:::  |:  |
Db         82 HADGVFTSDYSRLLGQISAKKYLESLIGKR 111


RESULT 13
Q93IH2
ID   Q93IH2      PRELIMINARY;      PRT;   389 AA.
AC   Q93IH2;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Sulfur transferase precursor.
GN   STRA.
OS   Wolinella succinogenes.
OC   Bacteria; Proteobacteria; Epsilonproteobacteria; Campylobacterales;
OC   Helicobacteraceae; Wolinella.
OX   NCBI_TaxID=844;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Schneider P.V., Simon J., Klimmek O.;
RT   "The sulfur transferase of Wolinella succinogenes.";
RL   Submitted (AUG-2001) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AJ318789; CAC50085.1; -.
DR   InterPro; IPR001763; Rhodanese-like.
DR   Pfam; PF00581; Rhodanese; 2.
DR   SMART; SM00450; RHOD; 3.
KW   Signal; Transferase.
FT   SIGNAL        1     21       POTENTIAL.
FT   CHAIN        22    389       SULFUR TRANSFERASE.
SQ   SEQUENCE   389 AA;  41949 MW;  6C60850CAD9C4B9C CRC64;

  Query Match             38.1%;  Score 59;  DB 2;  Length 389;
  Best Local Similarity   39.3%;  Pred. No. 1.9;
  Matches   11;  Conservative    8;  Mismatches    9;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
              ||:| |   ::   :|::|:||:| | |
Db        314 HAKGKFAGSINIEKKGKSAQEFVALLPK 341


RESULT 14
Q9DE29
ID   Q9DE29      PRELIMINARY;      PRT;   172 AA.
AC   Q9DE29;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide.
GN   ADCYAP1.
OS   Brachydanio rerio (Zebrafish) (Danio rerio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Fradinger E.A., Sherwood N.M.;
RT   "Characterization of the gene encoding both growth hormone-releasing
RT   hormone (GRF) and pituitary adenylate cyclase-activating polypeptide
RT   (PACAP) in the zebrafish.";
RL   Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF217251; AAG36782.1; -.
DR   ZFIN; ZDB-GENE-020809-4; adcyap1.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
FT   CHAIN        81    125       GROWTH HORMONE-RELEASING HORMONE.
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FT   CHAIN       128    165       PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE.
SQ   SEQUENCE   172 AA;  19558 MW;  458117F0042E36DD CRC64;

  Query Match             34.8%;  Score 54;  DB 13;  Length 172;
  Best Local Similarity   33.3%;  Pred. No. 4.2;
  Matches   10;  Conservative    8;  Mismatches   12;  Indels    0;  Gaps    0;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |::| ||   | | :  | |:::| ::  |
Db        128 HSDGVFTDSYSRYRKQMAVKKYLATVLGKR 157


RESULT 15
Q90XZ4
ID   Q90XZ4      PRELIMINARY;      PRT;   175 AA.
AC   Q90XZ4;
DT   01-DEC-2001 (TrEMBLrel. 19, Created)
DT   01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT   01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
DE   Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE   activating polypeptide precursor.
OS   Ictalurus punctatus (Channel catfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Siluriformes;
OC   Ictaluridae; Ictalurus.
OX   NCBI_TaxID=7998;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=21255738; PubMed=11356048;
RA   Small B.C., Nonneman D.;
RT   "Sequence and expression of a cDNA encoding both pituitary adenylate
RT   cyclase activating polypeptide and growth hormone-releasing hormone-
RT   like peptide in channel catfish (Ictalurus punctatus).";
RL   Gen. Comp. Endocrinol. 122:354-363(2001).
DR   EMBL; AF321243; AAK66970.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Signal.
FT   SIGNAL        1     20       POTENTIAL.
FT   CHAIN        84    128       GROWTH HORMONE-RELEASING HORMONE.
FT   CHAIN       131    168       PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT                                POLYPEPTIDE.
SQ   SEQUENCE   175 AA;  20070 MW;  FFE0EA22C68321C9 CRC64;

  Query Match             34.5%;  Score 53.5;  DB 13;  Length 175;
  Best Local Similarity   40.0%;  Pred. No. 5.1;
  Matches   12;  Conservative    6;  Mismatches   11;  Indels    1;  Gaps    1;

Qy          1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
              |::| ||   | | :  | |:::|  | ||
Db        131 HSDGIFTDSYSRYRKQMAVKKYLA-AVLGR 159


Search completed: October 15, 2003, 10:55:48
Job time : 59.0164 secs
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